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A Caecilian Miscellany

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INTRODUCTION

Since the publication in 1968 of my general work "Caecilians of the World," I have had the fortune to examine and take data from more than 200 specimens that were not available to me previously. I have also found occasion to re-examine a number of forms previously recorded. As many species are poorly known from a few specimens and in many cases from only single type-specimens, it is pertinent that all new information be placed on record. This paper reports on these observations and may be regarded as supplemental to my monograph. It contains in addition a few corrections of errors in that work.

It is to be hoped that herpetological collectors in the field will make greater effort to discover more of these elusive creatures even at the expense of a spade and the necessary efforts.

I am under considerable obligation to the several curators of museum collections who have been kind enough to lend me specimens here reported.

The following species are discussed or described in this paper:

Ichthyophis humphreyi sp. nov.
Ichthyophis kohtaoensis Taylor
Ichthyophis mindanaoensis Taylor
Typhlonectes natans (Fischer)
Typhlonectes obesus Taylor
Nectocaecilia ladigesi Taylor
Chthonerpton indistinctum (Reinhardt and Lütken)
Caecilia abitaguae Dunn
Caecilia attenuata Taylor
Caecilia bokermanni Taylor
Caecilia corpulenta Taylor
Caecilia disossea Taylor
Caecilia dunni Hershkovitz
Caecilia inca sp. nov.
Caecilia leucocephala Taylor
Caecilia mertensi sp. nov.
Caecilia nigricans Boulenger
Caecilia perdita Taylor
Caecilia tentaculata Linnaeus
Caecilia tenuissima sp. nov.
Oscaecilia bassleri (Dunn)
Oscaecilia equatorialis sp. nov.
Oscaecilia ochrocephala ochrocephala (Cope)
Microcaecilia albiceps (Boulenger)
Luetkenotyphlus brasiliensis (Lütken)
Herpele squalostoma (Stutchbury)
Schistometopum thomense (Barboza du Bocage)
Siphonops annulatus (Mikan)
Siphonops hardyi Boulenger
Siphonops paulensis Boettger
Dermophis gracilior (Günther)
Dermophis mexicanus eburatus Taylor
Geotrypetes grandisonae Taylor
Geotrypetes seraphini congoensis Taylor
Uraeotyphlus menoni Annandale
Scolecomorphus vittatus Boulenger

The following museum abbreviations are used:

AMNH: American Museum of Natural History, New York.

BMNH: British Museum of Natural History, London.

CAS: California Academy of Sciences, San Francisco.

DSBM: Division of Systematic Biology, Museum, Stanford, California.

EHT-HMS: Edward H. Taylor-Hobert M. Smith Herpetological Collection, Lawrence, Kansas.

* Research Associate, University of Kansas Museum of Natural History.

FMNH: Field Museum of Natural History, Chicago.

KUMNH: University of Kansas Museum of Natural History, Lawrence, Kansas.

LACMNH: Los Angeles County Museum, California.

UMMZ: University of Michigan Museum of Zoology, Ann Arbor.

USNM: United States National Museum, Washington, D.C.

ZSIC: Zoological Survey of India, Indian Museum, Calcutta, India.

ZSZM: Zoologische Statsinstitut und Zoologische Museum, Hamburg, Germany.

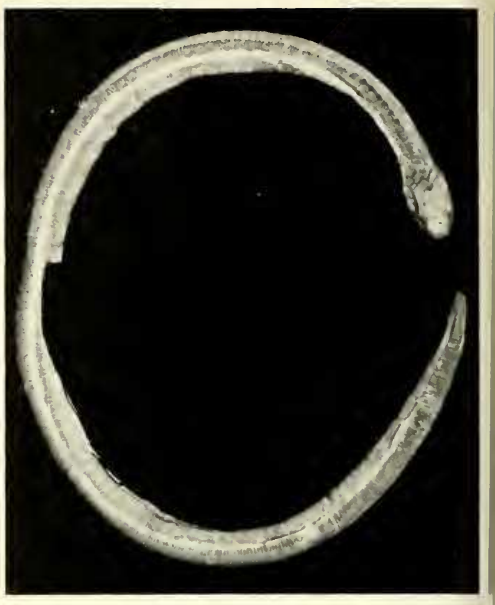

FIG. 1. *Ichthyophis humphreyi* sp. nov. Type. EHT-HMS No. 8378. Type-locality, not known. Lateral view (dorsal of head). Body injured near middle. Length, 205 mm.

Ichthyophis humphreyi sp. nov.

(Figs. 1-3)

HOLOTYPE: EHT-HMS No. 8378. Type-locality and collector unknown, but presumed to be from southern Asia or a neighboring island of Indonesia. It is a larval specimen, probably in its second year.

DIAGNOSIS: Body and tail folds (primaries and secondaries) total 415-422 (depending on the level on the circumference where the count is made). Those on the anterior three fourths of the body form two angles (dorsal and ventral) in passing around the body; in the posterior fourth they tend to lose the angles and pass di-

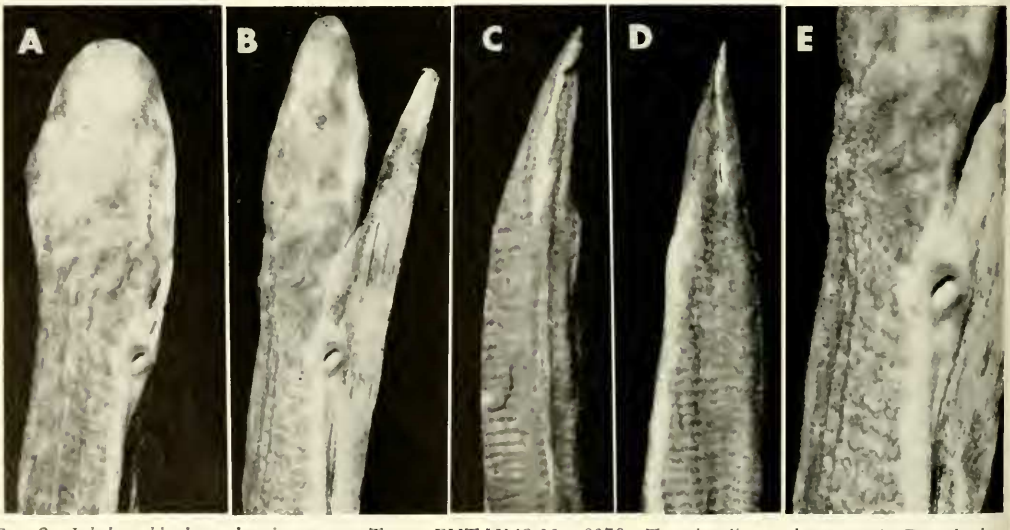

FIG. 2. *Ichthyophis humphreyi* sp. nov. Type. EHT-HMS No. 8378. Type-locality, unknown. **A**, Dorsal view of head; **B**, lateral view of head; **C**, dorsal view of caudal region; **D**, ventral view of caudal region; **E**, neck area showing gill and dermal glands in folds.

rectly around the body. A light stripe from before eyes to vent laterally.

Description of the Holotype: The larva has a length of 205 mm, a head width of 6 mm, a body width of about 4.2 mm. The height in much of the body is 7 mm. The head seemingly is flattened. The eye is in a distinct socket. The tentacle has not yet formed a tentacular aperture but the aperture is represented only by a slight depression closely preceding the eye. The nostrils are not visible from directly above the head, but are indicated by slight elevations on the periphery of the snout (a juvenile character). The snout extends perhaps less than half a millimeter beyond the mouth. I find no trace of the lateral line system remaining. The choanae are elongate, lateral, directed outward and widely separated. The tongue is as yet poorly developed. No narial plugs are present. The vent is longitudinal. Primary and secondary folds together are 415-422. There are 112 vertebrae. About 12 are confined to the tail, the terminal folds being poorly defined. Tail strongly compressed, with a fin several millimeters long dorsally, and passing around the tip. Dermal glandules are dimly evident on many of the folds. They appear more or less circular and slightly raised. The distinctness of these externally is probably due to fixation. These are scarcely discernible even under a lens.

Scales seemingly have not yet developed; no species of the Ichthyophiidae is known lacking scales in the adults.

The dental formulae are: premaxillary-maxillary, 17-1-17; prevomeropalatine, 20-1-20; dentary, 19-19; splenial, 9-10. There is no evidence of group-loss or group-replacement of teeth. It is probable that the adults will have a few more teeth in each series.

Measurements in mm: Length, total, 205; tail, 5.5; width of head, 6; width of body, about 4.2; height of body, 7; body width in length, about 49 times; tail length in total length, about 37 times.

Color: At present the body is deep brown. A whitish or yellowish lateral stripe from in front of the eye to vent. There are no distinguishable white spots on the head. Anterior part of head vaguely lighter. There is a whitish spot at vent.

Remarks: At the present time there are two tiny skin folds that originate in the nuchal region and pass, occasionally broken, posteriorly along the dorsal part of the body. At places these are not present but reappear and may be seen near the

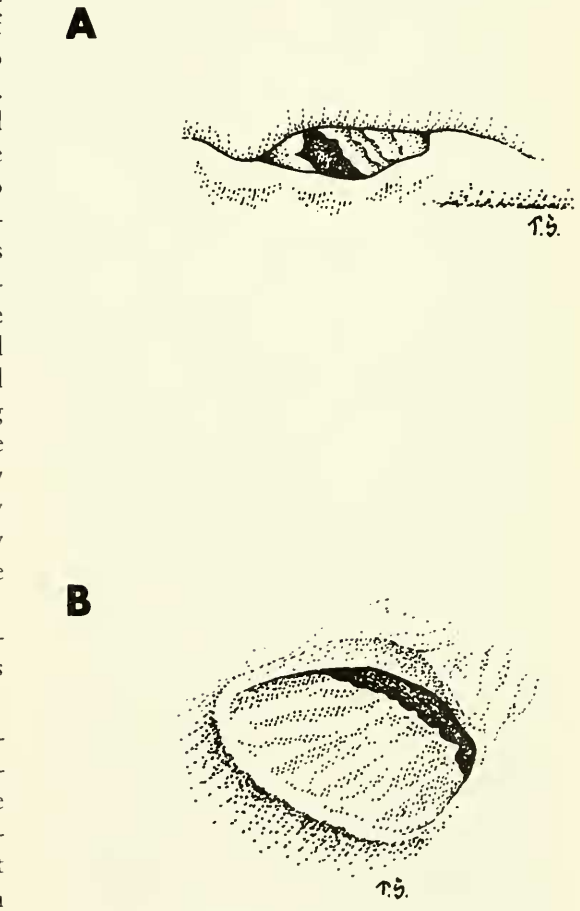

Fig. 3. A, Appearance of one gill slit of a single pair in larvae of species of the Ichthyophiidae other than *Ichthyophis humphreyi*. B, Appearance of a gill slit from the single pair in *I. humphreyi*, in larvae of similar age as preceding (from type). Anterior is to the right.

posterior part of the body. These folds may be the result of the fixation.

The character of the large single gill slit on each side differs from that of all other caecilian larvae that I have examined. Figure 3 demonstrates the difference between the two types of larval gills.

The number of folds (primary and secondary together) exceeds that of any other known species.

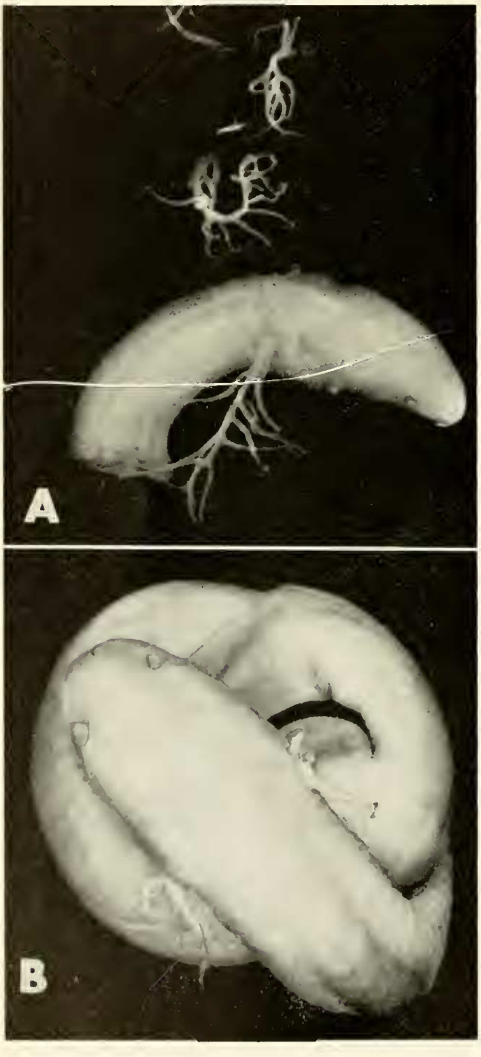

FIG. 4. *Ichthyophis kohtaoensis* Taylor. A, Embryo removed from egg showing three pairs of gills, two broken from right side, all three from left side. B, Embryo in position in egg, the gills evident laterally. Both are enlarged.

The species is named in honor of Dr. Philip Humphrey, Director of the Museum of Natural History, Kansas University, in recognition of the courtesies extended to me at the Museum.

Ichthyophis kohtaoensis Taylor

(Fig. 4)

The gills of the species of this genus in the specimens that have been available are developed and reabsorbed in the egg before the young hatch. Figure 4B here presented shows an embryo as seen through the transparent egg cover, the gills being more or less obvious. In Figure 4A the embryo has been removed from the egg. There are three lateral pharyngeal gills of varying size. On the left side the gills are broken away from the pharyngeal region, on the right side the largest one is still attached. The species retains a single gill slit until it emerges from its water environment and transforms. (Certain of the other species of this genus retain two gill slits until they transform.) As yet I have not seen embryonic gills of the young of the Scolecomorphidae or of either of the subfamilies of the Caeciliidae.

Ichthyophis mindanaoensis Taylor

(Figs. 5-6)

Ichthyophis mindanaoensis Taylor, Univ. Kansas Sci. Bull., vol. 40, No. 4, 1960, pp. 69-74, figs. 13-15. Type-locality, Todaya, Mt. Apo, Mindanao.

I have examined several more specimens of this species from Mindanao, all from an area distant from the type-locality. A reexamination of specimen DSBM No. 20931 (now in the California Academy of Sciences) shows an error in the count of the combined primary and secondary folds. The correct numbers are, dorsal count 326, ventral count 316. Thus the total variation of the series of folds is from about 287 to 326, a difference of about 39 which is equivalent to about 13 primary folds.

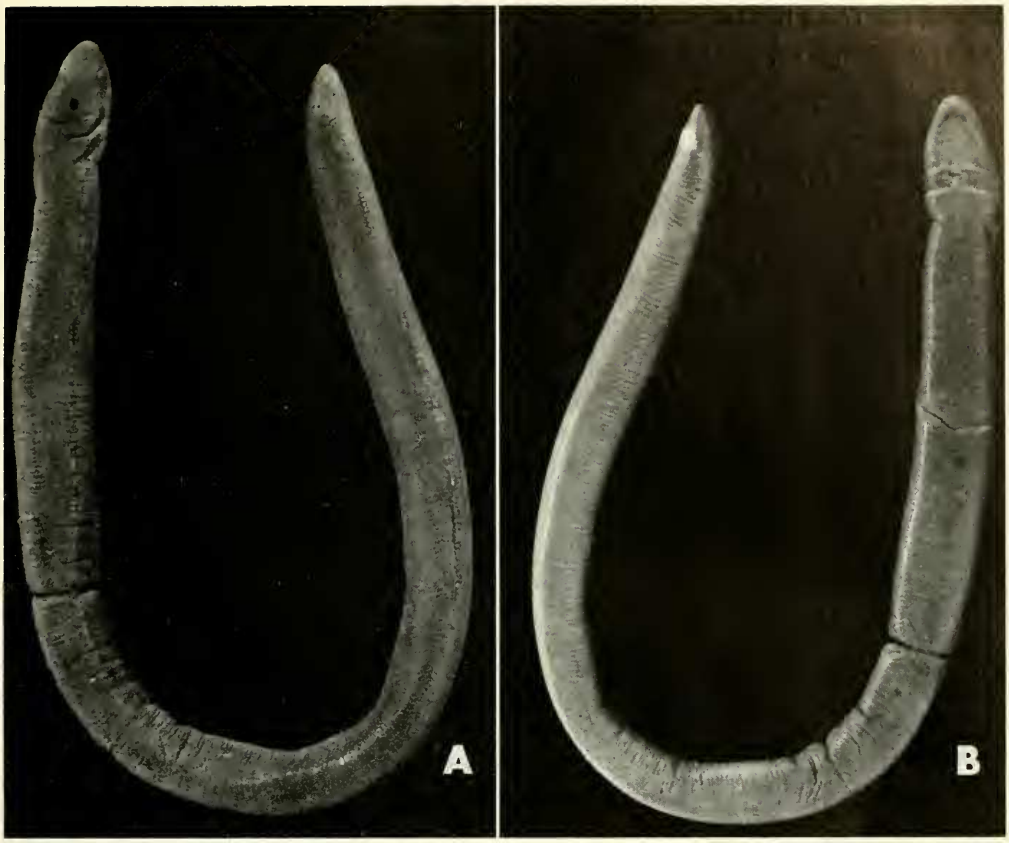

Fig. 5. *Ichthyophis mindanaoensis* Taylor. CAS No. 20922. Misamis Occidentalis Province, Mindanao, P.I. Bank of Dapitan River, 11-12 km SE Buena Suerte, New Pinan, west side Dapitan Peak, ca 4,000 ft. **A,** Dorsal view; **B,** ventral view. Length, 275 mm.

The type is from Mt. Apo at an elevation of about 2,800 ft. The other specimens here studied are from Dapitan Peak in the province of Zamboanga, Mindanao, at an elevation between 2,000 and 4,000 ft.

Transformation of larvae seemingly occurs the second or third year of life. This species differs from *I. glandulosus* Taylor in having 111-116 vertebrae compared with 102-104; the combined folds greater in number, 287-326 compared with 273-297; and splenial teeth in adults 3-3, compared with 11-11. *I. glandulosus* presumably transforms during the first year of life instead of the second or later. *I. glandulosus* is known as a lowland form.

Typhlonectes natans (Fischer)

(Fig. 7)

Caecilia natans Fischer, Arch. für Naturg., Jahr. 46, vol. 1, 1880, pp. 217-218, pl. 8, figs. 5-7. Type-locality, Río Cauca, Colombia.

In species of caecilians it is not often that a large series of specimens is available from a single locality. Thus information is rarely available on the amount or degree of variation obtaining in a species in a given locality. Data taken from such material do not include variation resulting from different geographical conditions such as elevation, and climate or other environmental factors.

It has been my good fortune to have

TABLE 1. Data on *Ichthyophis mindanaoensis* (measurements in mm).

Locality	Mt. Apo, Mind. Type	Mt. McKinley, Mind. Paratype	Mt. Dapitan, Mind.	Mt. Dapitan, Mind.	Mt. Dapitan, Mind.	Mt. Dapitan, Mind.	Mt. Dapitan, Mind.
Number*	50958	50957	20930	20921	20934	20928	20929
Total length	276	283	—	274	260	245	311
Body width	9.8	—	9.	10.	10.2	9.3	12.
Head width	9.3	—	9.	9.8	9.8	—	9.9
Snout tip to 1st groove	12.	—	10.	11.6	12.2	—	13.
Snout tip to 2nd groove	15.	—	12.	13.9	14.2	—	16.
Snout tip to 3rd groove	20.	—	16.1	17.2	17.3	—	19.7
Eye to tentacle	1.5	—	1.3	1.65	1.5	—	1.75
Tentacle to nostril	3.6	—	3.3	3.3	3.8	—	3.8
Folds, dorsal count	308	308	305	310	317	316	—
Premax-max teeth	25-26	25-26	24-25	26-26	26-25	27-25	—
Prevom-palatine teeth	24-24	24-24	20-21	23-23	23-24	23-22	—
Dentary teeth	17-18	17-18	19-20	19-19	23-22	22-22	—
Splenial teeth	8-8	8-8	8-9	9-10	10-10	10-10	—
Post. scale rows	3	3	3	3	3	3	3
Vertebrae	111	113	—	—	—	—	—
Elevation, ft.	2,800	2,000	3,700	—	—	2,500	—

* Type and paratype, FMNH; others, CAS.

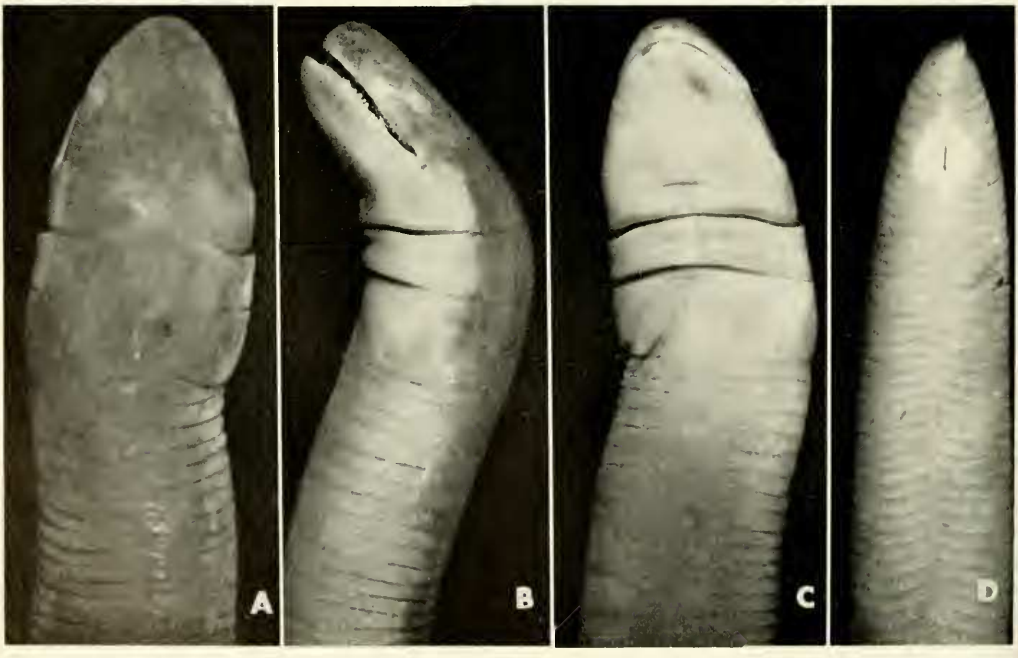

FIG. 6. *Ichthyophis mindanaoensis* Taylor. CAS No. 20922. Misamis Occidentalis Province, P.I. **A,** Head and neck, dorsal view; **B,** head and neck, lateral view; **C,** head and neck, ventral view; **D,** subcaudal region.

Fig. 7. *Typhlonectes natans* (Fischer). Barranquilla, Colombia. Dorsal (right) and ventral views.

been given the privilege by Dr. John Wright of studying a large series of specimens (120) acquired by the Los Angeles County Museum of Natural History from near Barranquilla at the mouth of the Magdalena River, Colombia.

In my previous work (Taylor, 1968) I prepared a table of variation in 25 specimens that were available to me at that time from various points in its range. These varied in length from 140 mm to 577 mm, the primary folds from 83 to 95 with a mean of 90.

In the present lot of specimens the primary folds vary from 83 to 90 (mean 86), the total length from 139 to 380 mm. The earlier series had 15 of the 25 specimens larger than the largest of this series.

Variation in the dental series is not great. Such as obtains has been proved in many species to be a matter of age; that is, more teeth are added as the animal increases in age and size.

Typhlonectes obesus Taylor

(Figs. 8-9)

Typhlonectes obesus Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 253-255, fig. 129. Type-locality, "Maues, Brasil."

The present species was described from a single pregnant female whose body was somewhat distorted by the embryos and it did not disclose the normal degree of body compression. I have recently been able to study three specimens of this form through the courtesy of the California Academy of Sciences. These are from a Brasilian area not far distant from the type-locality. Data taken from these specimens are compared with the data taken from the type, and the three specimens are figured.

The recently born young still shows the "scar" on the occiput where the embryonic gills attached. There are now no gill slits. The dental series are as yet poorly developed. The head is proportionally wider than in the adult (see Fig. 8C). The dor-

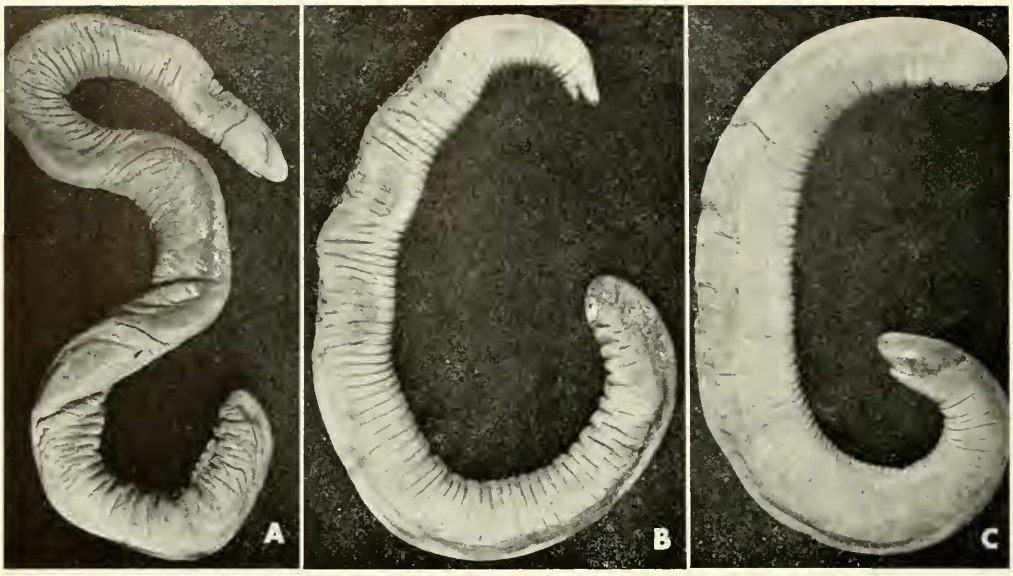

FIG. 8. *Typhlonectes obesus* Taylor. **A,** CAS No. 125422, from "Petite Igarapi, affluent of Rio Jacitara, Lago Grande de Manacapuru, Estado Amazonas, Brasil." Length, 438 mm. **B,** CAS No. 125421, from "Petite Igarape, affluent of Rio Jacitara, Lago Grande de Manacapuru." Length, 290 mm. (Formerly Brussels Mus. No. 2725.) **C,** CAS No. 125423, from "Igarape Pixuna du Lago Januari (rive droit Rio Negro, Maues, Estado Amazonas)." Length, 129 mm; recently born young. (Formerly Brussels Museum No. 2699.)

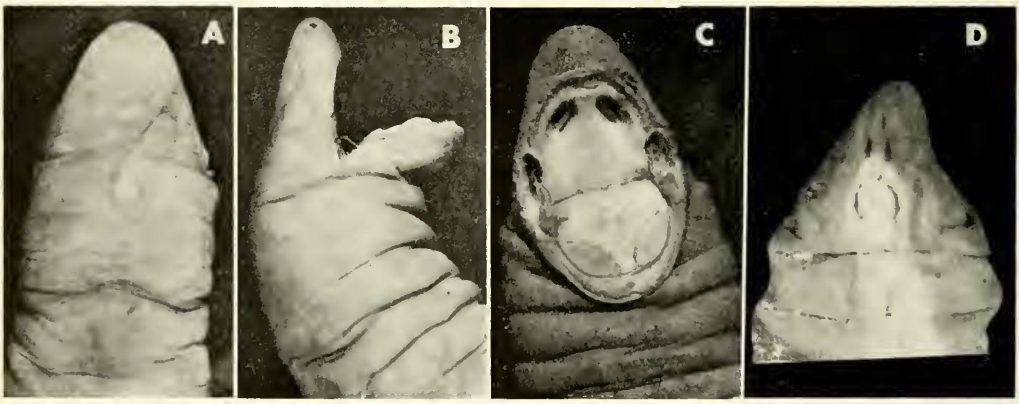

FIG. 9. *Typhlonectes obesus* Taylor. CAS No. 125421. **A-B,** Head; **C,** buccal region; **D,** subterminal area.

sal fin is proportionately higher than in the adult.

It will be observed that body height exceeds body width in both young and adults.

These specimens do not show the same amount of wrinkling as obtained in the type which had been strongly coiled.

Nectocaecilia ladigesi Taylor
(Figs. 10-11)

Nectocaecilia ladigesi Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 275-278, figs. 139, 142. Type-locality, "Bocco do Moju" (Rio Moju near mouth, Pará, Brasil); Univ. Kansas Sci. Bull., 1970, vol. 48, no. 24, pp. 859-869, fig. 3.

I have had the good fortune to examine 3 recently collected specimens of *N.*

Table 2. Data on *Typhlonectes obesus* (measurements in mm).

Museum Number*	AMNH 71434	CAS 125421	CAS 125422	CAS 125423
Total length	373	290	438	129
Width of head	12	10.2	15.2	6
Width of body, approx.	32	15	18	7.5
Height of body	32±	19	29±	11.6
Width in length	12	19	24	17
Snout projects	3.	2.9	3.4	2.9
Eye to tentacle	5.2	3.5	3.6	2.7
Nostril to tentacle	0.7	0.7	0.65	0.3
Primary folds	88	86	83	77
Secondary folds	0	0	0	0
Premax-max teeth	20-20	20-1-21	22-1-23	—
Prevom-palatine teeth	18-20	19-1-19	23-1-24	—
Dentary teeth	18-(18)	18-18	19-18	—
Splenial teeth	5-5	5-5	7-7	—
Dorsal fin height	9.	—	—	—
Vertebrae	101	—	—	—
Sex	♀	♀	♀	♂

*Localities. No. 71434: "Junction of the Rio Camiña and Maues Gaucu rivers, Estado Amazonas, Brasil." No. 125421: "Petite Igarape, affluent of Rio Jacitara, Lago Grande de Manacapuru," Estado Amazonas. (Formerly Brussels Museum No. 2725.) No. 125422: Same as preceding. No. 125423: "Igarape Pixuna du Lago Januari (rive droit Rio Negro, Maues, Estado Amazonas)." (Formerly Brussels Museum No. 2699.)

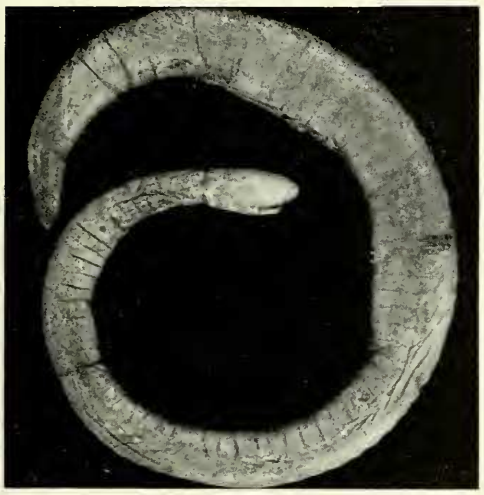

Fig. 10. *Nectocaecilia ladigesi* Taylor. USNM No. 154085. Utinga, Pará, Brasil. Length, 389 mm.

ladigesi—two preserved and one a complete skeleton. The exact locality from which they were obtained is unknown. One other specimen collected by Dr. Philip Humphrey near the type-locality is USNM No. 154085. Data taken from these specimens are compared in Table 3.

The skeleton has a total of 94 vertebrae, which suggests a series of about 87 primary folds, and the total length is about 480 mm. The dental formulae are: premaxillaries 11; maxillaries 16 on the right side (incomplete on the left); prevomers 7; palatines 19 on left (broken on right); dentaries 20; splenials, 8 right, 6+ left. Data on the skull: length, 17 mm; greatest width, 12.2 mm; width between outer edges of eyes, 9.8 mm. Median length of the basisphenoid, 8 mm; greatest length, tip of snout to condyle, 9.1 mm; internal nares surrounded by maxillaries and prevomers. Greatest width of basisphenoid at the level of the wings of basisphenoid, 7.5 mm; snout tip to base of the premaxillary teeth, 2 mm; prefrontals 6 mm long; frontals 4 mm long; parietals 5.6 mm long.

Chthonerpeton indistinctum (Reinhardt and Lütken)

CAS No. 85521 ♂, Edo. Rio Grande do Sul, Brasil, has a head width of 10.4 and

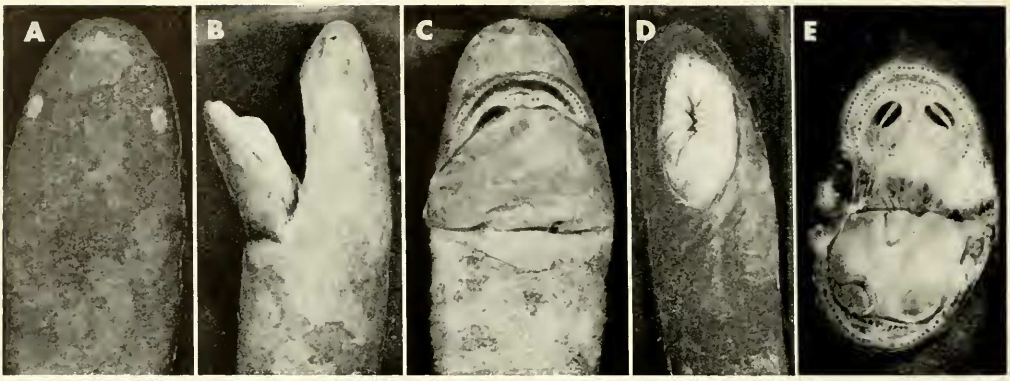

FIG. 11. *Nectocaecilia ladigesi* Taylor. UMMZ No. 129649. Locality, unknown. Length, 419 mm. **A,** Head, dorsal view, width 13.5 mm; **B,** head, lateral view; **C,** head, ventral view; **D,** subterminal region; **E,** buccal area.

a body width of 12.5 mm. Distance of eye to tentacle, 3 mm, to nostril, 1.9 mm. The eye is relatively large with a definite white ring. The nostril is not visible from directly above the head; vent longitudinal with 5 blackish elongate lateral dentacles. Primary folds 77, none complete above or below except posterior 12; no true secondaries. The anal glands conspicuous, whitish in color. Tongue with large plump peripheral plugs. Choanae as large in diameter as the distance between the pair. Tooth formula: premaxillary-maxillary, 17-17; prevomeropalatine, 12-12; dentary, 14-14; splenial, 3-3. Group replacement of teeth (only some of the teeth functioning). Terminal shield moderately large; eye and tentacular aperture connected by a light area. Large whitish spot about the vent area.

Caecilia abitaguae Dunn
(Figs. 12-16)

Caecilia abitaguae Dunn, Bull. Mus. Comp. Zool. Harvard Col., vol. 91, no. 6, 1942, pp. 508-509. Type-locality, Abitagua, Pastaza, Ecuador; elev. 1,100 ft.

TABLE 3. Data on *Nectocaecilia ladigesi* (measurements in mm).

Museum	ZSZM	USNM	UMMZ	UMMZ
	Type			
Number	1925-245	154085	129649	129912
Locality	Rio Moju, Pará, Brasil	Utinga, Pará, Brasil	?	?
Total length	416	389	419	174
Width of body	9.5	14	10	8
Width of head	13	12	13.5	8
Height of body	17	18.5	15.7	11
Width in length approx.	43.8	28	42	21.7
Height in length	25.6	21.5	26.7	15
Primary folds	82	82	84	81
Secondary folds	0	0	0	0
Vertebrae	97	92	?	?
Premax-max teeth	19-1-20	20-1-24	23-1-22	—
Prevom-pal teeth	20-1-20	20-1-20	21-1-21	—
Dentary teeth	17-16	19-18	18-18	—
Splenial teeth	5-5	6-7	6-6	—
Sex	?	?	♀	yg

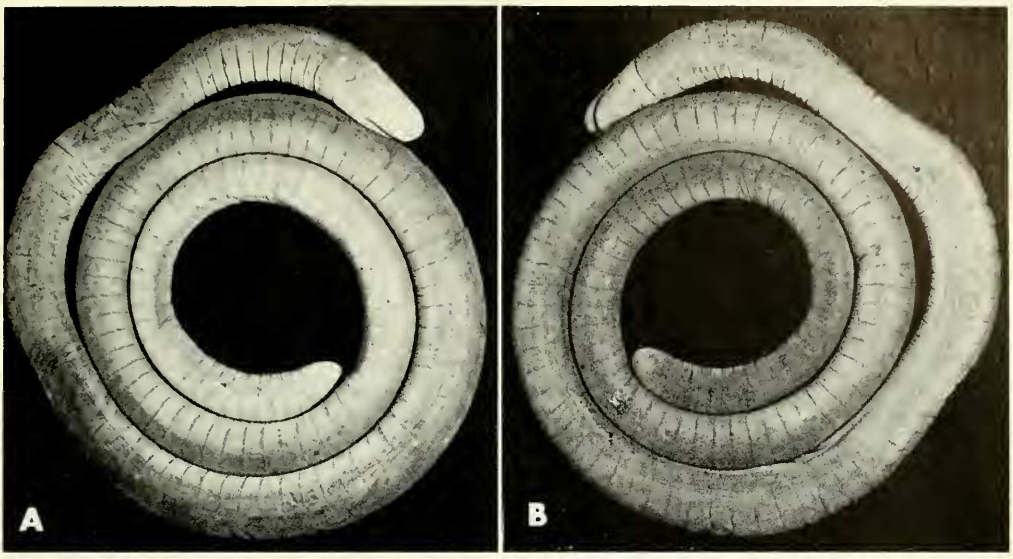

Fig. 12. *Caecilia abitaguae* Dunn. KUMNH No. 146973. Morena-Santiago Province, Ecuador. Length, 990 mm. **A,** Anterior body dorsal, subterminal part ventral; **B,** anterior part ventral, subterminal part dorsal.

Two specimens of this species have been recently taken. One is a male, KUMNH No. 119403, taken by John Lynch about 8 km NW of Mera, 1,300 m elevation, Pastaza, near the type-locality, "crawling at dusk in a ditch." It is not yet half-grown, the length being 432 mm (adults reach more than 1¼ meters in length).

The following data are available (measurements in mm): Body width, 9.7; head width, 11; tentacle from eye, 4.8; tentacle from nostril, 2; eye from nostril, 4.3; snout tip to first nuchal groove, 12.6; to second, 14.9; to third, 19.4. Primary folds, 141; no secondaries; eye in socket; nostrils well visible from above; scales begin about the 50th fold; premaxillary-maxillary teeth,

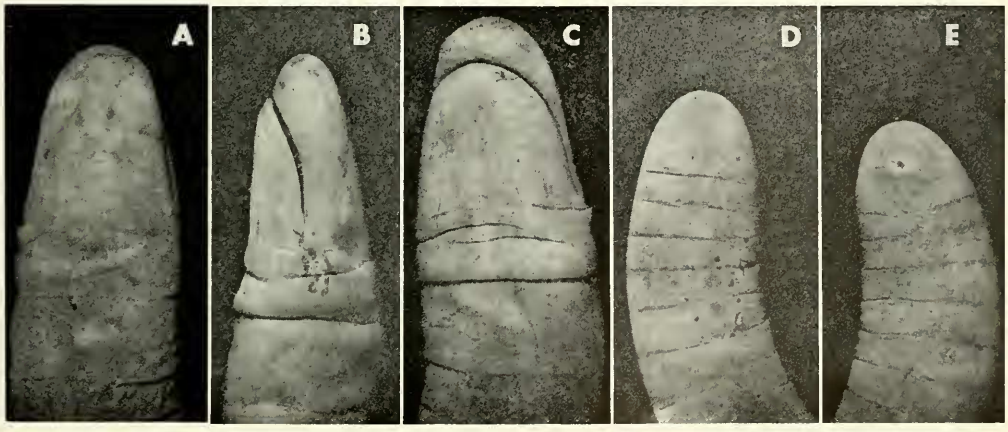

Fig. 13. *Caecilia abitaguae* Dunn. KUMNH No. 146973. Morena-Santiago Province, Ecuador. **A,** Head, dorsal view; **B,** head, lateral view; **C,** head, ventral view; **D,** terminal region, dorsal view; **E,** subterminal area, ventral view.

10-1-10; prevomeropalatine, 19-1-18; dentary, 9-10; splenial, 2-2(±); choanae small; a well-defined terminal "shield."

This specimen differs from the type in the absence of secondaries. However certain other members of the genus have a tendency to have the secondaries absent in occasional specimens. (The known specimens have only 3 and 5 secondaries.) The replacement teeth are on the point of piercing the gums so that a complete set of teeth is present. The alternative anterior teeth are presumably lost later.

The specimen in life was "blue black." Now it is slate with violet shades in certain lights. There is a small light spot at the tentacle and a small one on the area about the vent.

The second specimen, KUMNH No. 146973, recently captured by J. E. Simmons, "Río Piuntze," Cordillera del Condor, elev. 1,280 m, Morena-Santiago, Ecuador, likewise lacks a trace of secondaries. I describe it in some detail, since it appears to show some geographical variation.

Description of KUMNH No. 146973: Head relatively slender, the length 990 mm; the snout extends beyond mouth 5 mm; eye visible, the diameter of eye about 0.42 mm, in a socket; nostrils visible from directly above head; tentacular area elevated, below and slightly behind eye level, the distance from nostril, 3.4 mm, from eye, 10.2 mm, from lip, 2.5 mm. Tentacular aperture horseshoe-shaped, the end of the tentacle rounded. Snout tip to first nuchal groove, 26.5 mm; to second groove, 30.4 mm; to third groove, 39.5 mm. First collar with a transverse groove, moderately distinct above and laterally, completely delineated from second collar; second collar clearly defined above with two transverse grooves, the anterior the shorter.

Primary grooves (folds) 144, no secondary grooves. Most primaries incomplete above, dimly complete ventrally; a terminal unsegmented shield about 17 mm in length (dorsal measurement), the width near terminus, 5 mm. Anal area small, with about 5 denticulations preceding vent,

TABLE 4. Data on *Caecilia abitaguae* (measurements in mm).

Museum	UMMZ	UMMZ	CAS	KUMNH 119403	KUMNH
Number	89930	89929	5061	near Abitagua,	146973
Locality	Abitagua, Eastern Ecuador	same	same	Pastaza prov., Ecuador	Morena-Santiago, Ecuador
Total length	787	1303	303	432	990
Body width	18.8	22.1	8	9.7	20
Width in length	43.7	58.9	43	44.2	49.3
Primary folds	143	148	137	141	146
Secondary folds	3	5	5	0	0
Complete secondaries	0	0	0	0	0
Premax-max teeth	11-1-11	12-1-12	10-1-10	10-1-10	12-1-12
Prevom-pal teeth	10-1-10	12-1-12	9-1-9	9-1-8	12-1-12
Dentary teeth	10-10	13-13	10-10	9-10	11-11
Splenial teeth	3-3	4-4±	2-2	1-2	3-3
Scales begin in fold	40 to 50	50	50-60	50-60	?
Scale rows in terminal folds	1	1	1	1	1
Subdermals	none found	0	0	0	0
Sex	♂	♀	♀	♂	?
Group replacement of teeth	yes	yes	yes	yes	yes
Elevation, m.	1,100	—	—	1,300±	1,280
Vertebrae	—	—	—	142	150

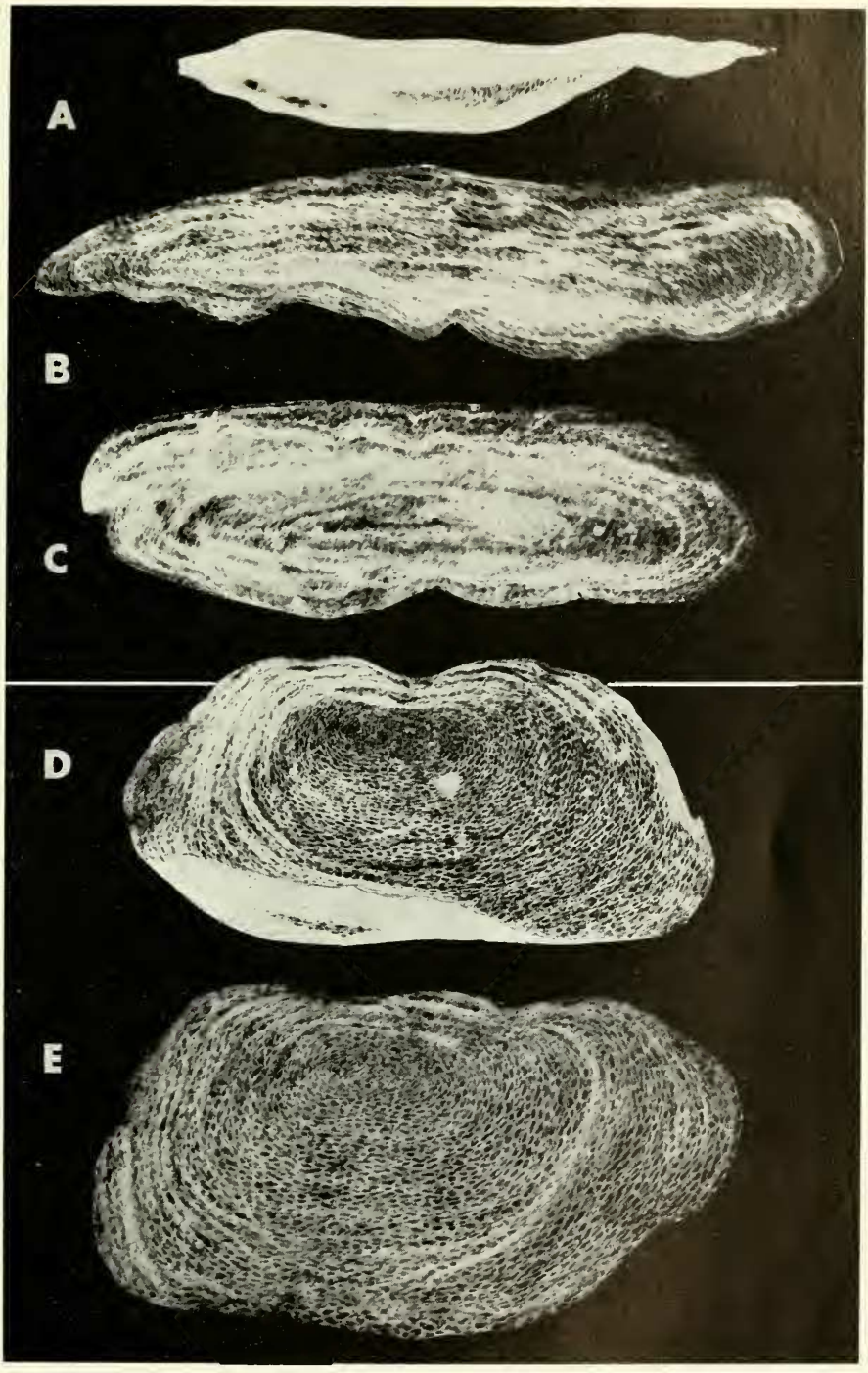

Fig. 14. *Caecilia abitagnae* Dunn. KUMNH No. 146973. Morena-Santiago Province, Ecuador. Scales: **A,** from about the 60th fold (folded); **B,** from about 80th fold; **C,** from about 90th fold; **D,** from last cm of body; **E,** from last cm of body. All scales are to the same magnification.

and about the same number behind with one larger lateral denticulation on each side; no anal glands discernible (probably female).

Scales begin about 15th fold; at first scales very small, transversely widened, their width about 0.25 mm. Over much of the body the scales form only one row in a fold, the scales four to five times wider than long. In posterior folds a single scale row, each scale in a well-defined pocket, the larger scales wider than long (2 x 2.3 mm), the "lines of growth" strongly marked. The folds are difficult to separate from their posterior attachment.

Tongue free anteriorly with two small teatlike narial plugs somewhat back from the anterior edge; internal nares moderate in size, the diameter of one in the distance between them about twice. The vertebrae number 150.

Dentition: Group loss and group replacement of premaxillary-maxillary series (anterior teeth) 11-1-11, the 1, 3, 5, teeth functional, the alternate teeth about ready to erupt; maxillary teeth, 6, much smaller,

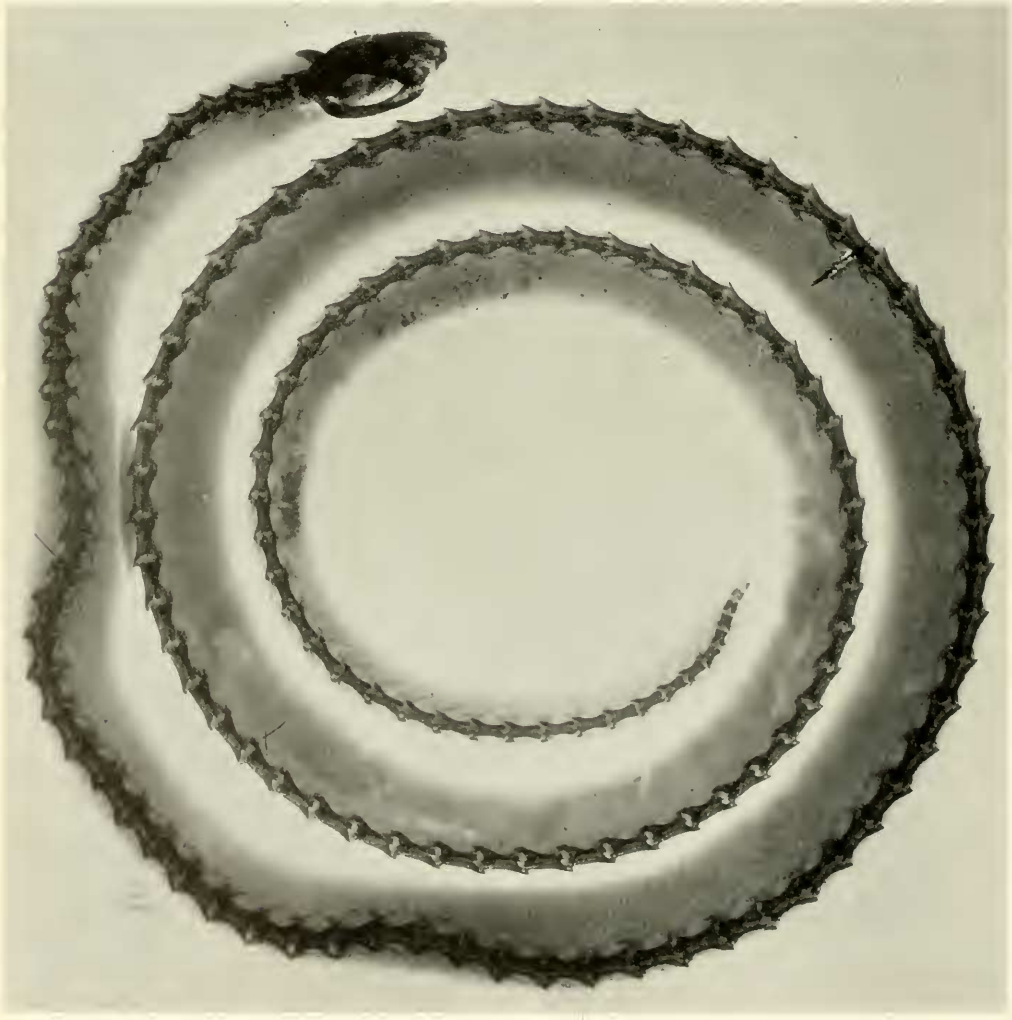

FIG. 15. *Caecilia abitaguae* Dunn. KUMNH No. 146973. Morena-Santiago Province, Ecuador. X-ray, vertebrae, 150. Length, 990 mm.

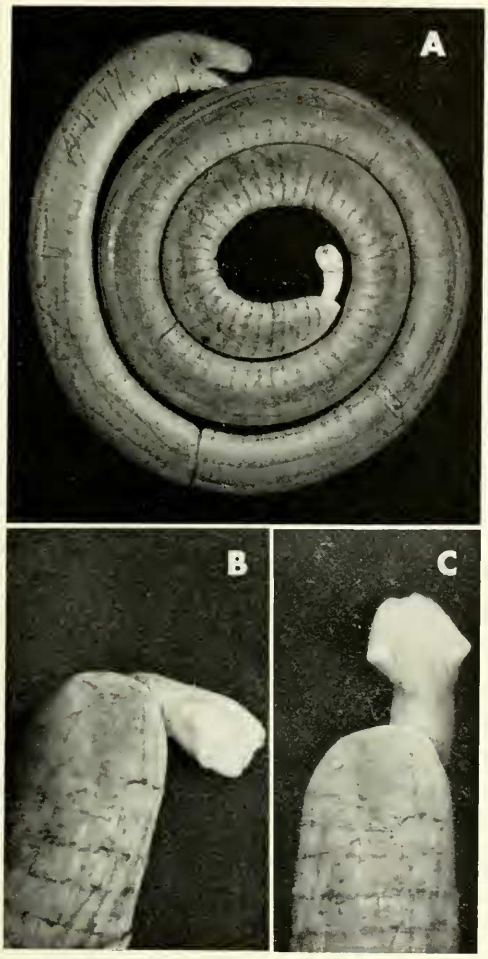

Fig. 16. *Caecilia abitaguae* Dunn. KUMNH No. 119403. Near Abitagua, Pastaza Province, Ecuador. **A,** Lateral view of body showing extruded penis; **B,** lateral view of penis, enlarged; **C,** dorsal view of same, enlarged. Length of body, 432 mm.

all functional; prevomeropalatine series, 12-1-12, with prevomers 1, 3, 5 functional, and larger than the seven palatine teeth; dentary teeth, anterior functional and very large proportionally, the posterior teeth very small. Splenials deeply buried in tissue, 2-2. The two series in the upper jaw rather widely separated and definitely not parallel.

Color: Body blackish gray on dorsum. Lower half of sides a lighter gray with dim dark borders on edge of folds. Head lighter gray than body, the color extending back somewhat on neck, especially so on ventral part. No light spots at eyes or nostrils; area about tentacle vaguely pinkish as is the region about vent.

Measurements in mm: Total length, 990; width of head, 20; width of neck, 22; body width, about 20; the width in length, about 45.4 times.

The relationship of this form is with certain other described forms of the genus but they differ as follows:

C. caribea: This has about the same number of primary folds, 142-151 (144). The most striking difference is the complete absence of scales on the body.

C. corpulenta: This species has a wide yellow stripe, and lacks scales completely (both scales in grooves and subdermals); subterminal region white or yellow. Primary folds, 123; no secondaries.

C. crassisquama: Primary folds, 174; a yellowish olive lateral stripe not clearly defined; scales present only in five or six most posterior folds, the scales thick, inflexible, unable to be flattened; no subdermals.

C. occidentalis: A narrow yellowish stripe present; primaries, 218; width in length, 111 times.

C. attenuata: No scales in folds; no subdermal scales (except one specimen has a few scales in last five folds). Primary folds, 182-191; width in length, 62-87 times.

C. antioquiaensis: Primary folds, about 171, with two or three scale rows in each posterior fold. Subdermal folds present.

C. abitaguae: Primary folds, 143-148; reaching a length of 1,300 mm. Some specimens have a very few secondaries while others have none.

Caecilia attenuata Taylor

(Figs. 17-18)

Caecilia attenuata Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 358-359. Type-locality, "Peru."

This species was described from two somewhat desiccated young specimens from Perú without definite locality. A recent specimen, KUMNH No. 143556, was collected by Bruce MacBryde 10.4 km N of Santa Rosa, in Napo, Ecuador, at an elevation of 1,910 meters. The specimen, splendidly preserved, measures 910 mm in length, the head width (greatest) 12 mm, the width of body (about) 10.4 mm. Tentacle to eye, 8 mm; tentacle to nostril, 2.3 mm. Snout tip to 1st groove, 18.4 mm; to second groove, 21.3 mm; to third groove, 27.5 mm. Snout projects beyond mouth 3 mm.

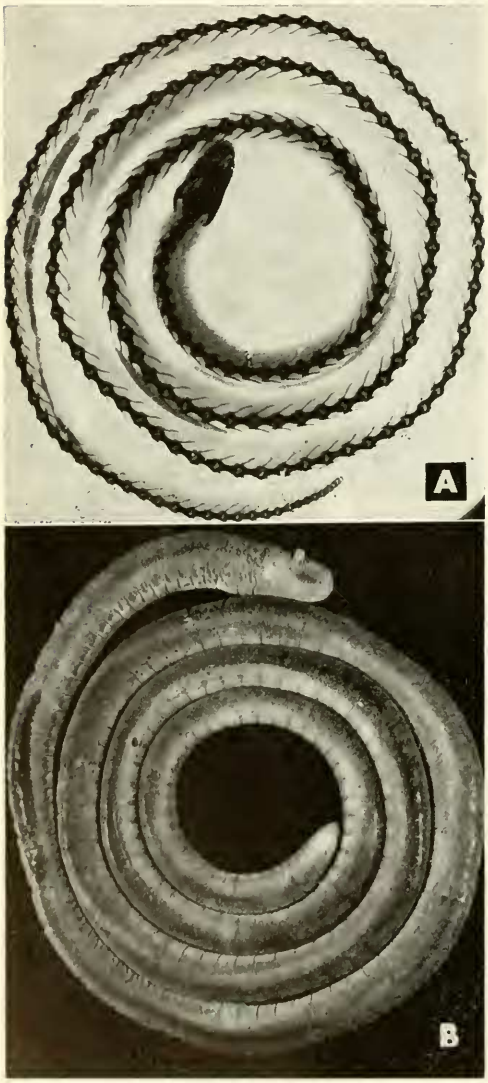

FIG. 17. *Caecilia attenuata* Taylor. KUMNH No. 143556. Napo Province, Ecuador, elev. 1910 m. A, X-ray, vertebrae, 191; B, dorso-dorsolateral view of body. Length, 910 mm.

The primary folds are 182 followed by an unsegmented "shield" measuring (dorsally) 8 mm in length. No secondaries. The folds are incomplete above, except the last 15, but in the ventral region all are complete.

The eye is small, in a socket, slightly raised, barely visible externally. Nostrils plainly visible from directly above head. The tentacular aperture, not visible from above, is 2.3 mm distant from nostril and almost directly below it; the distance from eye, 8 mm. The vent is small as is the whitish surrounding area. Subterminally there is a deep-black flat depression.

The choanae are small, the distance between them about 1.4 mm, each about 1 mm in diameter. The palate is striated and the tongue relatively short with two teatlike narial plugs near the front border.

The premaxillary-maxillary teeth show group-loss and group-replacement. There are 8-1-8 teeth in the full set but only the alternate teeth 2, 4, 6 are functioning while the numbers 1, 3, 5 are nearly ready to erupt. In the prevomeropalatine series, of 8-1-8, the same is true. Dentary teeth are 10-9, the alternate teeth on each side functioning, the missing teeth ready to erupt.

The splenials are 2-2 but at a much lower level than the dentary series. The gums appear to be much swollen and the palatine and splenial teeth are deeply sunk in the gums.

Both nuchal collars have a transverse groove and the second is fused below to the first primary fold.

Scales are present in the last five folds, but only three or four scales are present on each side of the fold and the scales are not overlapping. I found no subdermal scales. Seemingly the elongate skin glandules usually present in folds above the scales in

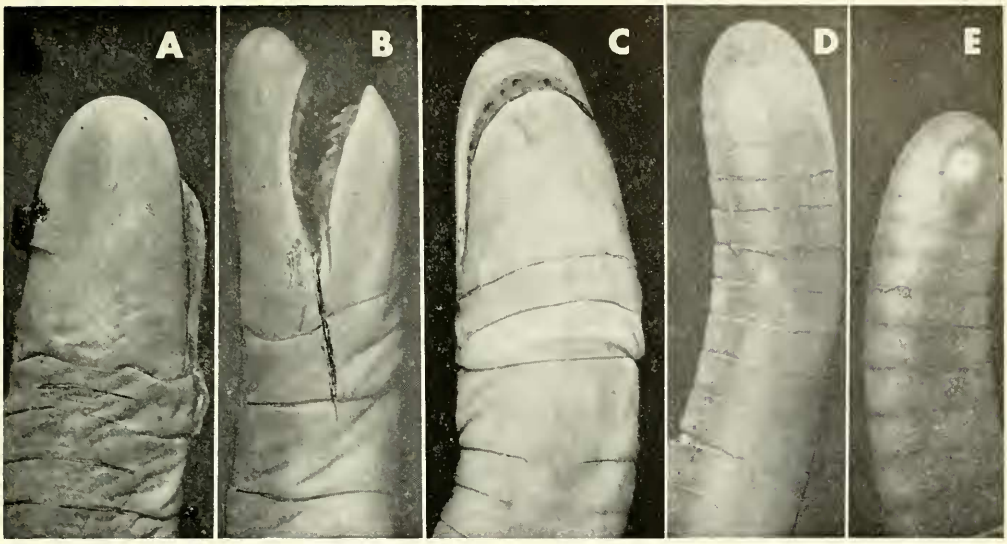

Fig. 18. *Caecilia attenuata* Taylor. KUMNH No. 143556. Napo Province, Ecuador. **A,** Head, dorsal view; **B,** head and neck, lateral view; **C,** head and neck, ventral view; **D,** posterior body, dorsal view; **E,** subterminal part of body, ventral view.

caecilians of this genus are absent or greatly reduced in length.

The color generally is blackish above. There is a light ventrolateral area (stripe), which anteriorly, for about 15 cm, shows a distinctly pinkish coloration, and is broken by vertical black lines on the edge of the folds. Farther back the area becomes more greyish and the pinkish coloration all but disappears. The sides of the head and snout-tip are slightly lighter as are areas about eyes, nostrils, tentacles, and the immediate region of the vent.

Compared with the two types, in which body width in length is 62-66 times, it will be noted that in this specimen, more than twice as large as either type, the width in length is approximately 87 times.

There are color differences. The type is brownish presumably due to its having been in the preserving fluid many years. Scales were stated not to be present in the types but some actually may be present and were not found by me. The older specimen shows the ventral part of the folds generally complete. No secondaries are present. Vertebrae, 190. The number of primaries, 182, extends variation formerly reported 189-192. The dentition in the three specimens is very similar.

Caecilia bokermanni Taylor

Caecilia bokermanni Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 359-363, figs. 188-190.

A second specimen of *bokermanni* is also from the type-locality, Río Bobonaza, Chicherota, Napo-Pastaza, Ecuador.

The following measurements (in mm) are from this specimen: total length, 333; width of head, 5.2; body width, 5; body height, 6.7; tentacle to eye, 2.6; tentacle to nostril, 1; snout tip to 1st groove, 86; to 2nd groove, 10.7; to 3rd groove, 13; snout projects 1.7.

The primary folds are 192, incomplete above except in the posterior part of body; secondary folds 14, of which 4 are complete.

Eye in a socket, skin covered, and now not visible externally; both nostrils visible from directly above; choanae large, the diameter of one a little narrower than the interchoanal distance; tongue practically

destroyed; vent nearly circular. Group-loss and group-replacement of teeth. Premaxillary-maxillary teeth, 9-9; prevomeropalatine, 8-9; dentaries with tissues removed and destroyed; splenials 2-2.

Scales begin near first secondaries; one scale row present in folds of last two centimeters. No subdermal scales discovered. Specimen presumably a young male. The terminal shield small. No light spots on head or vent.

The specimen is now uniformly brownish, the head not obviously lighter than the body.

Caecilia corpulenta Taylor

Caecilia corpulenta Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 365-369, figs. 191-193.

On page 369, Taylor, as a result of a lapsus, compared this form with what he calls *Caecilia haydee* Roze. There is no such species. *Caecilia flavomaculata* Roze and Solano was intended; *haydee* (Roze) is a species of *Nectocaecilia*.

Caecilia disossea Taylor

The type of this species is AMNH No. 42832 from the mouth of the Río Santiago, Perú. It was listed by Dunn (1942) as a paratype of *Caecilia bassleri* Dunn, but differs from *bassleri* in having an eye socket, the eye not covered by bone.

I have recently had five specimens from Lago Agrio, Napo, Ecuador for examination. These are KUMNH Nos. 34902, 35251, 125314, 125315 and 125330. The counts of the primary folds are within the range 238-262; the secondaries, 34-39.

Dunn (1942) gives the number of primary folds on a second paratype, AMNH No. 42852, as 285; the secondaries as 17. These counts have not been verified. Since the primary count is much outside the known variational limits, it may be questioned.

Caecilia dunni Hershkovitz

Hershkovitz (1938) described *Caecilia dunni* from a single specimen obtained near Tena, Napo-Pastaza, Ecuador at an elevation of 1,700 ft. (Atlantic drainage).

Characteristic of the species the author records 124 primary folds (including the two collars) and 68 secondary folds, 5 of which are complete. The length was 455 mm, the body diameter 13 mm, the head width 9.5 mm.

The dorsal surface is blue, the ventral surface paler with grayish mottling. The body is cylindrical and fairly thick (stout) throughout.

The author regards it closely related to *Caecilia tentaculata*!

Dunn's treatment in his 1942 paper associated with this form not only the type specimen but some 18 other specimens, one from NW Ecuador (probably Pacific drainage) and 17 from the Atrato and Chocó region of Colombia. Among these are two specimens described by Boulenger (1913) as *Caecilia intermedia* (while several other cotypes of *Caecilia intermedia* were referred to *Caecilia nigricans* Boulenger!).

Dunn himself was not satisfied with this arrangement and states "with more material the form might be divided." He suggests four possible divisions. It seems that most of these forms from the Pacific or Carribean drainage systems should be referred to *Caecilia perdita*, but this will necessitate a re-examination of the specimens so treated.

Caecilia inca sp. nov.

(Figs. 19-21)

HOLOTYPE: USNM No. 119008 ♂ from "Fundo Sinchona," Loreta, Perú. Collected by J. G. Sanders, July, 1944.

DIAGNOSIS: A large species, moderately slender, elongate (1,069 mm), with a body width about 16 mm. Primary folds 158, incomplete; no secondary folds present.

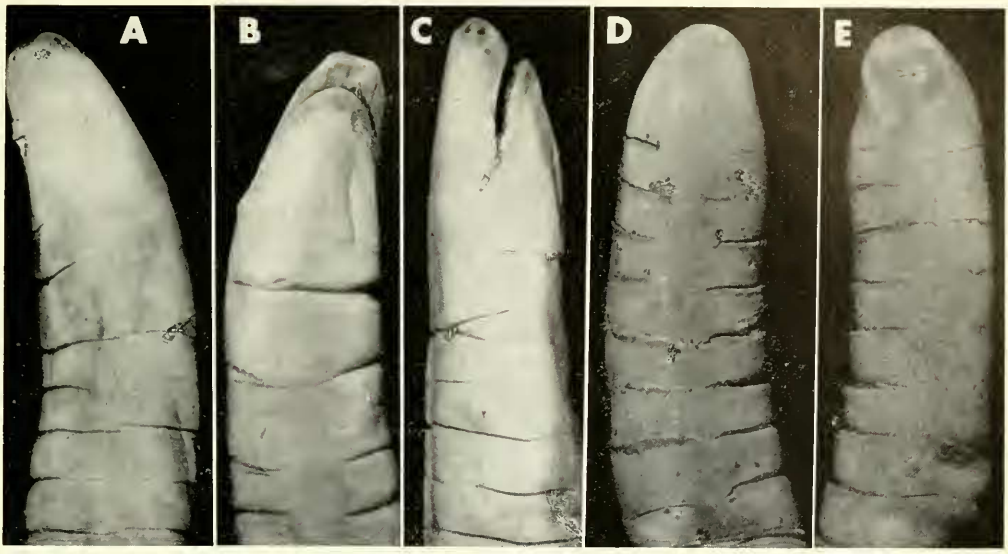

Fig. 19. *Caecilia inca* sp. nov. Type. USNM No. 119008 ♂. "Fundo Sinchona," Loreta, Perú. **A,** Head and neck, dorsal view; **B,** head and neck, ventral view; **C,** head and neck, lateral view; **D,** posterior body, dorsal view; **E,** posterior body, ventral view.

Width in length about 66 times. Scales begin at about the 10th fold with two or three scales on each side of the fold. The number of scales increases but there is a maximum of only one row of scales in each fold, with occasional extra scales. No evidence was found of group-loss and group-replacement of teeth. Eye in socket slightly visible externally. Color, grayish slate with a vague wash ventrolaterally of yellowish olive.

Description of the Holotype: Head somewhat narrowed towards the rounded snout tip, its greatest width 12.5 mm, its length from the snout-tip to back of second collar, 27 mm. Eye in a socket, dimly indicated externally and slightly raised. Tentacular aperture directly below nostril, 2.5 mm from the nostril, 7 mm from the eye, not visible from directly above the head. Nostrils small, distinctly visible from above the head; snout projects beyond mouth 3.8 mm.

The primary folds 158, incomplete both above and below except for 2 or 3 terminal ones. No secondaries present. An unsegmented terminal "shield." No tail. The depressed vent area measures 4 x 3 mm with numerous short denticulations preceding and following vent. Two anal glands visible on lateral denticles preceding the vent. The terminus of the body is slightly wider than the head.

Scales begin to appear in the 10th fold and a little farther back there is one scale row as long as the two sides of the fold. This number continues to the terminus of the body although there may be some few scattered extra scales. In the two or three complete terminal folds the rows may completely surround the body. The individual scales are encased in nearly transparent thin tissue pockets. The largest scales measure about 2.3 x 3.3 mm.

Dentition: There is no direct evidence that the anterior teeth are lost and replaced in groups. However, as has already been reported, even in species where this occurs, there is one time in the cycle when the replaced tooth group may be functioning before the other group is lost. This being the case one cannot be certain. The tooth formulae are: premaxillary-maxillary, 10-1-10; prevomeropalatine, 10-1-11; dentary,

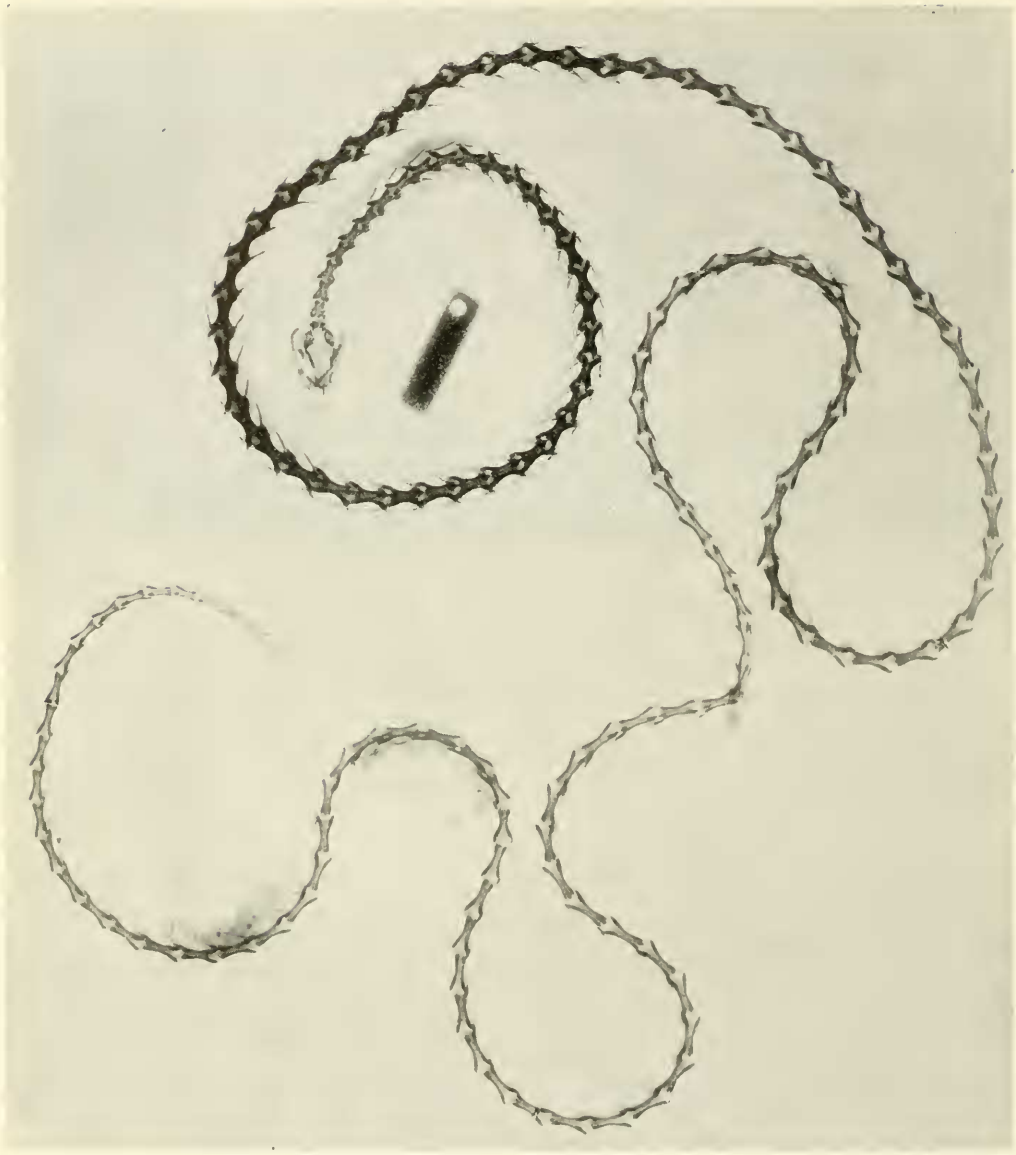

FIG. 20 *Caecilia inca* sp. nov. Type. USNM No. 119008 ♂. X-ray. Length, 1,069 mm; vertebrae, 158. (Note larger anterior vertebrae, and smaller ones in latter four-fifths of the body.)

10-10; splenial, 2-2. The premaxillary teeth are about double the size of the prevomerine teeth, the anterior dentary teeth being largest of all. The splenials are minute.

The tongue has two well-developed narial plugs that in this specimen extend forward slightly in advance of the tip of the tongue. The choanae are relatively small, the diameter of one is contained in the distance between them about 2.7 times.

Measurements in mm: Total length, 1,069; width of head, 12.5; width of body, 16; snout projects 3.8; width in length about 66 times.

REMARKS: In "Caecilians of the World," figures 226 and 227 were unintentionally included as illustrations of

Caecilia pachynema. They are actually illustrations of this new species, *C. inca*. Drawings had been made of this by my artist who labeled the drawing with the data attached to it. I had concluded that the specimen did not belong to the species

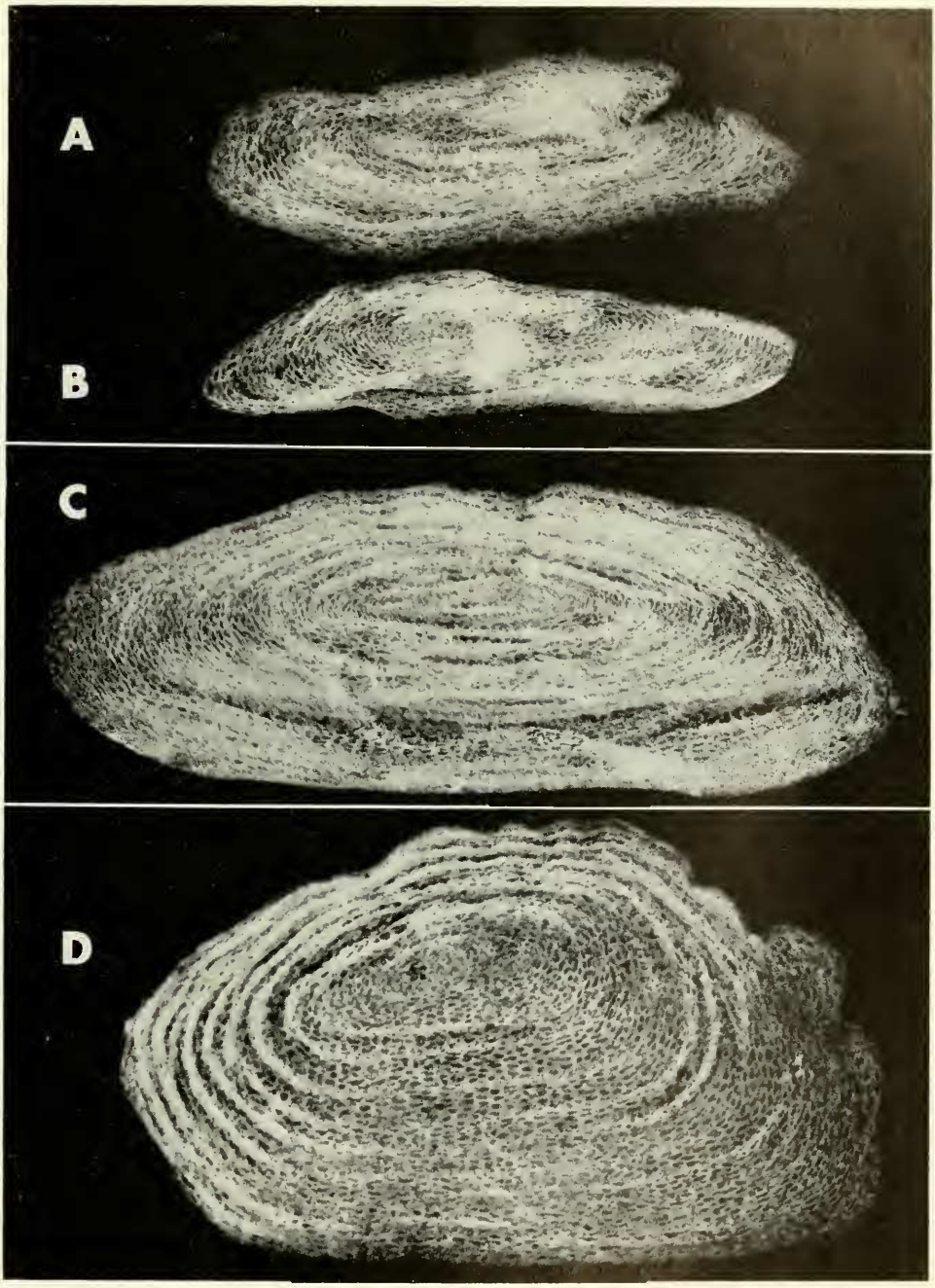

Fig. 21. *Caecilia inca* sp. nov. Type. USNM No. 119008 ♂. "Fundo Sinchona," Loreta, Perú. Scales: **A-B**, from about 25th fold; **C**, from 2 cm from end of body; **D**, from last cm of body. Largest scale about 2.3 x 3.3 mm; all scales are to the same magnification. (Note strongly marked concentric lines of growth.)

C. pachynema as it was labeled and withdrew it from the work. I could not associate it with any other described species. Through some error during the editing of the work these two figures were reinstated without my knowledge. However, in the text I state that I have not examined Peruvian specimens of the species.

After reexamination of much material from Colombia, Ecuador and Perú I am still unable to find a described counterpart and at last I am describing this form as presumably an undescribed species. I have been unfortunate in not finding the exact type-locality "Fundo Sinchona" in Loreto, since it is not marked on Peruvian maps available to me. This is not surprising since the name Fundo Sinchona suggests that it is a rural property, perhaps a private hacienda or rancho. Loreta is a very large State, nearly 800 miles in north-south length and about 500 miles in its widest part. It is for the most part lowland, lying in the drainage area of the upper Amazonian tributaries. The name "inca" refers to the rulers of the primitive inhabitants of Perú.

The extraordinary difference in color, color pattern, and adult size, and the fact that scales are present throughout most of the body, should separate this form without difficulty from *Caecilia pachynema* Günther.

Caecilia leucocephala Taylor
(Figs. 22-23)

This species was described from a juvenile specimen measuring 189 mm from the "Río Riposo," Valle del Cauca, Colombia. Two other specimens have become available and data from these are compared with those from the type. The first, CAS No. 66187, is said to be an exchange specimen from Dr. F. Werner, Wien, Austria, originating in "Central Brasil." It was originally labelled *C. pachynema*. The specimen has become stiffened and its present length is estimated. The terminus of the body has a small whitish area.

The second specimen is KUMNH No. 94378, from Cana, Darién, Panamá. The color is nearly slate black save for the whitish head and white vent area. In both specimens there is a vague darker area on each side of the occiput.

TABLE 5. Data on *Caecilia leucocephala* (measurements in mm).

Museum Number	EHT-HMS 583	CAS 66187	KUMNH 94378
Total length	189	455	306
Body width	6	11	8
Width in length, approx.	31.5	41	38
Primary folds	118	118	131
Secondary folds	42	32	54
Complete secondaries	8	9	9
Premax-max teeth	8-1-8	10-1-10	9-1-9
Prevom-pal teeth	10-1-10	9-1-8	9-1-9
Dentary teeth	11-11	11-11	11-11
Splenial teeth	2-2	2-2	3-3
Scales begin, fold (ca)	25	31	25
Scale rows in terminal folds	1	1	1
Subdermals present	yes	yes	yes

The scales of CAS No. 66187 show what appear to be concentric seasonal lines of growth. These were almost completely missing in the young type. The light color of the head is very pronounced while the head color of the type has become brownish white in preservative. The head color of the Panamá specimen also is lighter than is the type now.

The California Academy specimen purports to be from "Central Brasil," but most probably the locality is in error. It is more likely from a locality in the Pacific or Caribbean drainage.

The width of the head is greater proportionally than in the juvenile type.

Caecilia mertensi sp. nov.
(Figs. 24-26)

HOLOTYPE: CAS No. 63983, an exchange specimen purporting to come from

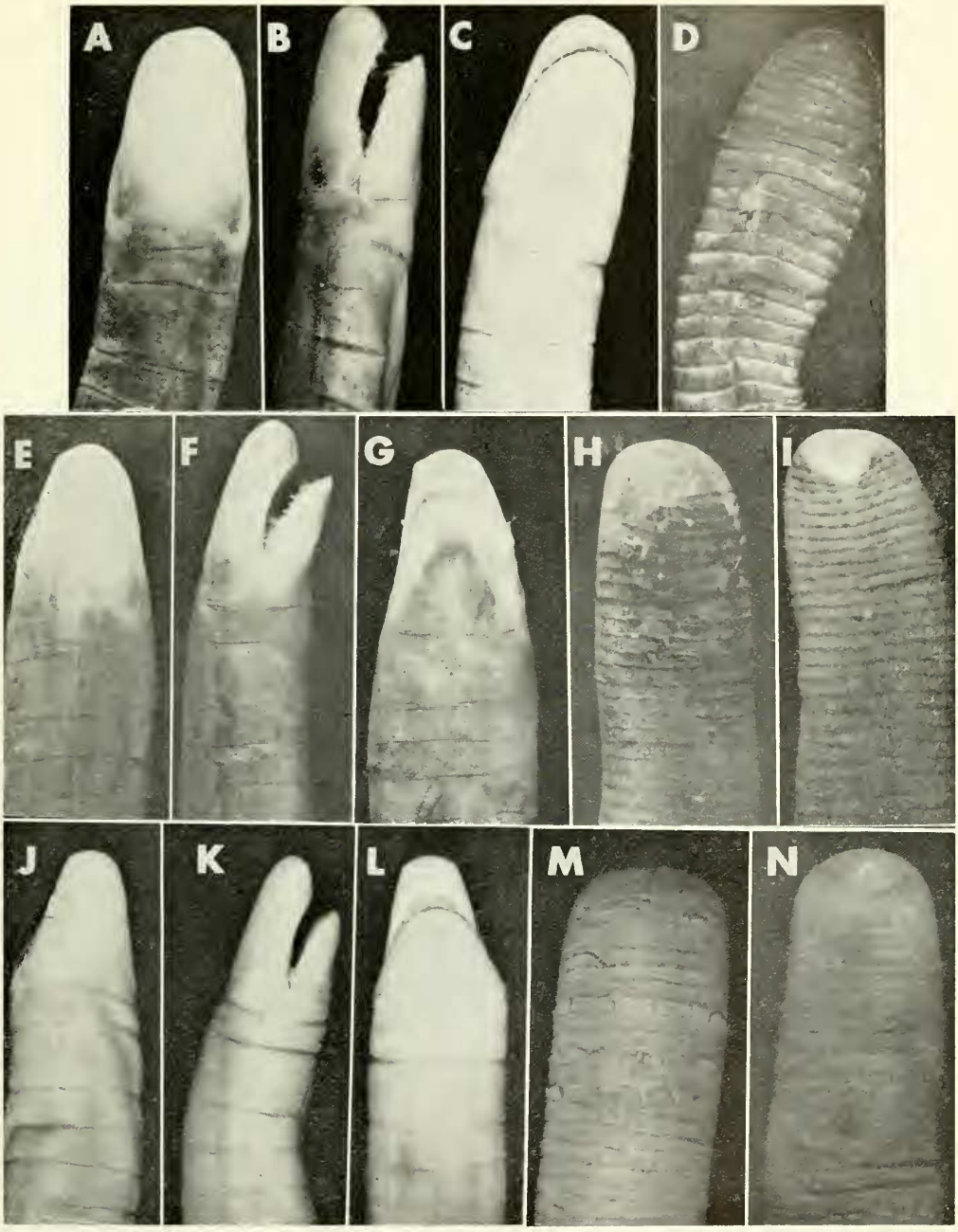

Fig 22. *Caecilia leucocephala* Taylor. **A-D**, EHT-HMS No. 583, "Río Riposa," Valle del Cauca, Colombia. Dorsal, lateral and ventral views of head, and dorsal view of terminal part of body. **E-I**, KUMNH No. 94378, Cana, Darién, Panamá. Dorsal, lateral and ventral views of head, and dorsal and ventral views of posterior body. **J-N**, CAS No. 66187, "Central Brasil." Dorsal, lateral and ventral views of head and neck, and dorsal and ventral views of posterior end of body.

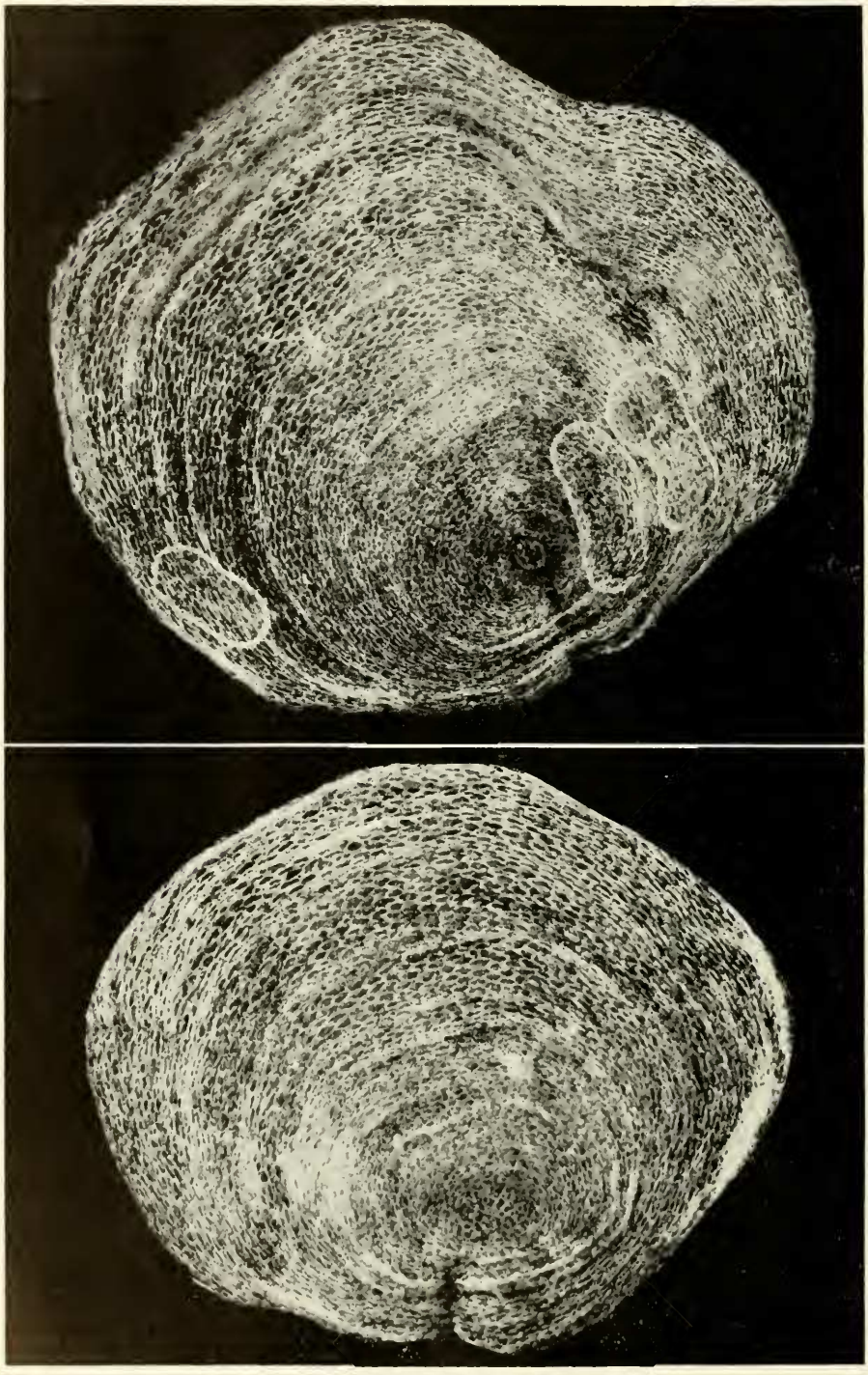

FIG. 23. *Caecilia leucocephala* Taylor. CAS No. 66187. Two scales (same magnification) from last cm of body.

"Seychelle Isle." It is most probably a specimen from South America since the genus *Caecilia* is known only from South and Central America.

Diagnosis: A moderately elongate species with a known length of 495 mm and a body width of about 12.5 mm; head width 9 mm, narrower than the terminus of the body (11 mm). Snout rounded, head not depressed. Tentacular aperture below and vaguely posterior to the nostril, but much closer to the nostril than to the eye. Primary folds, 142, incomplete above and below throughout most of the body.

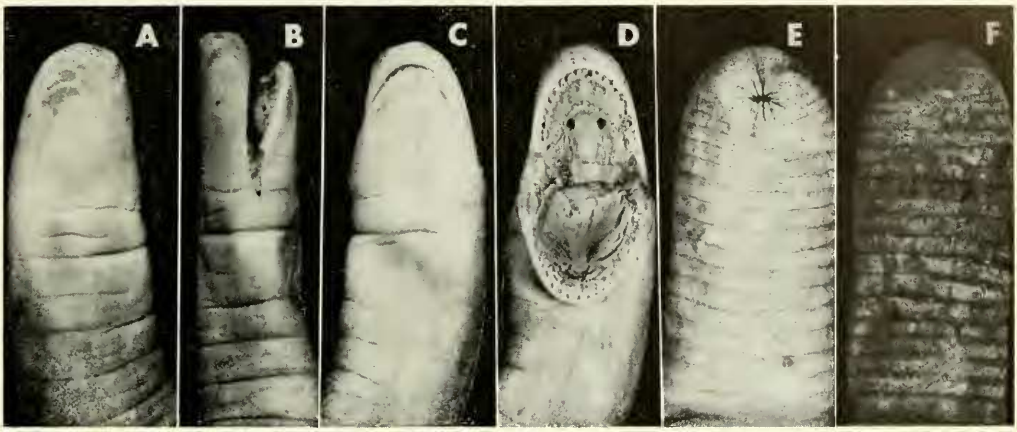

Fig. 24. *Caecilia mertensi* sp. nov. Type. CAS No. 63983. **A-C,** Dorsal, lateral and ventral views of head region; **D,** buccal area; **E-F,** ventral and dorsal views of terminal part of body.

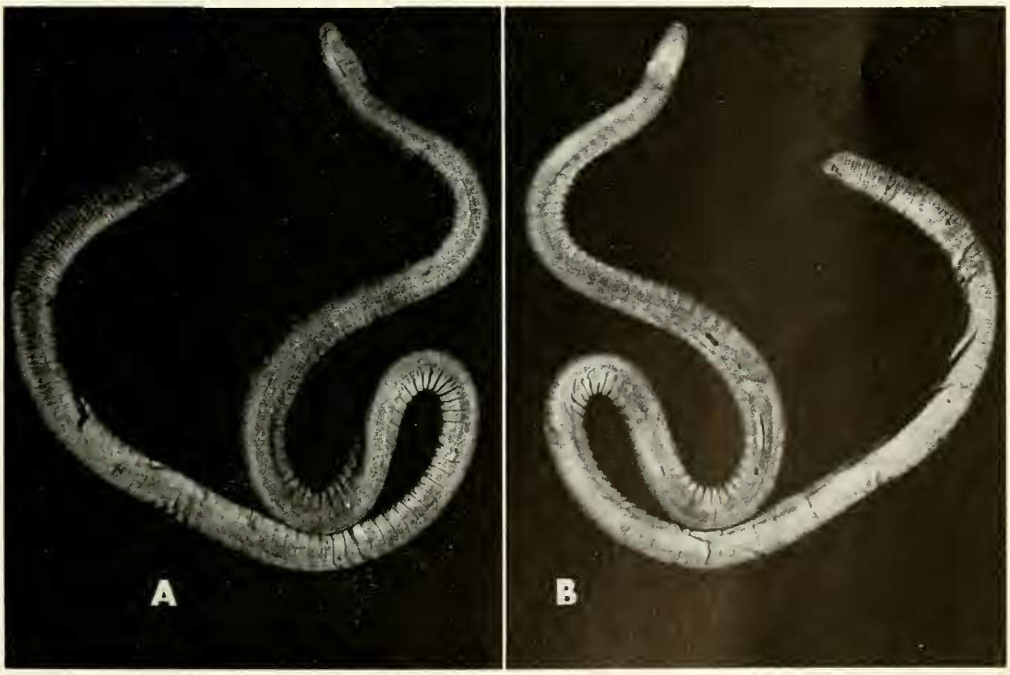

Fig. 25. *Caecilia mertensi* sp. nov. Type. CAS No. 63983. **A,** Dorsal view of body; **B,** ventral view of body. Length, 495 mm.

Secondary folds, 48, and the 12 anterior folds lateral and very short while the last 4 completely surround the body. Color grayish brown, the head and lower jaw grayish. Splenial teeth, 2-2. Only a single scale row in a fold.

DESCRIPTION OF THE HOLOTYPE: Head narrowed a little anteriorly, the snout projecting 1.6 mm; eyes very small, in a socket, visible externally. Distance from snout tip to first nuchal groove, 11 mm; to second groove, 14.2 mm; to third groove, 17.4 mm. First collar distinct dorsally, somewhat less so ventrally, with a transverse dorsal groove; second collar very distinct above, less so ventrally where it fuses with the first primary fold. A dorsal transverse groove present.

Scales begin at or near the 25th fold. These are wider than long; more posteriorly the scales increase in number in the fold and become proportionally longer, and the initium becomes proportionally nearer the anterior edge of the scale. The largest scales measure about 1.7 x 2.3 mm. The scales anteriorly are much smaller and the lines of growth are more evident.

The skin glandules are rather conspicuous. Three types may readily be distinguished. The largest are the elongate glandules seen in the folds above and below the scales, lying longitudinally. The smallest are usually about 0.10 to 0.18 mm in surface diameter. Then there are numerous glandules that measure 0.5-0.9 mm in diameter. The surface of this third type has several darker areas which give the glandule a lacelike appearance.

Dentition: The teeth appear to be smaller than in most of the species of *Caecilia*. The premaxillary-maxillary teeth, 10-1-10; prevomeropalatine, 11-1-11; dentary, 12-12; splenial, 2-2. The median part of the premaxillary series is rather widely separated from the prevomerine series (not parallel).

The tongue has two strongly developed lateral narial plugs, and the area between these plugs is pitted. The internal nares are relatively small, the diameter of one in the distance between, about 3 times.

Measurements in mm: Total length, 495; greatest head width, 9; body width, 12.5; terminal width, 11; tentacle to nostril, 1.9; tentacle to eye, 4; width in length, about 39 times.

Color: The color is a light brown, becoming grayish brown laterally; posteriorly the brown is a little more intense and the folds appear to have a dark and a grayish band. Head grayish above and below; the ventral surface of the neck and body is lighter, approaching fawn color. There is no distinct light spot at the vent; neither are there spots of white at the eye and nostril.

REMARKS: Despite the attached data, I feel certain that the specimen originated in South America rather than in the Seychelles. There is no certain clue as to exactly where it may have originated. I would place it in the Eastern Atlantic drainage.

Caecilia nigricans Boulenger
(Fig. 27)

This large species seemingly is confined to the Pacific drainage of Ecuador, Colombia and eastern Panamá. Thanks to Dr. John Wright, I have recently examined two specimens from the LACMNH collection.

The first, No. 72741, is from the north slope of Alto del Buey, between 420 and 500 ft. elevation, Chocó, Colombia. The length is 555 mm, the primary folds, 184, the secondaries, 58. Scales begin about the 33rd fold with a single row continuing in each fold to the terminus and with numerous scattered scales forming partial additional rows.

The second specimen is No. 72742. The length is 476 mm; the body width, 7.2 mm; the height of body, 11 mm; width of

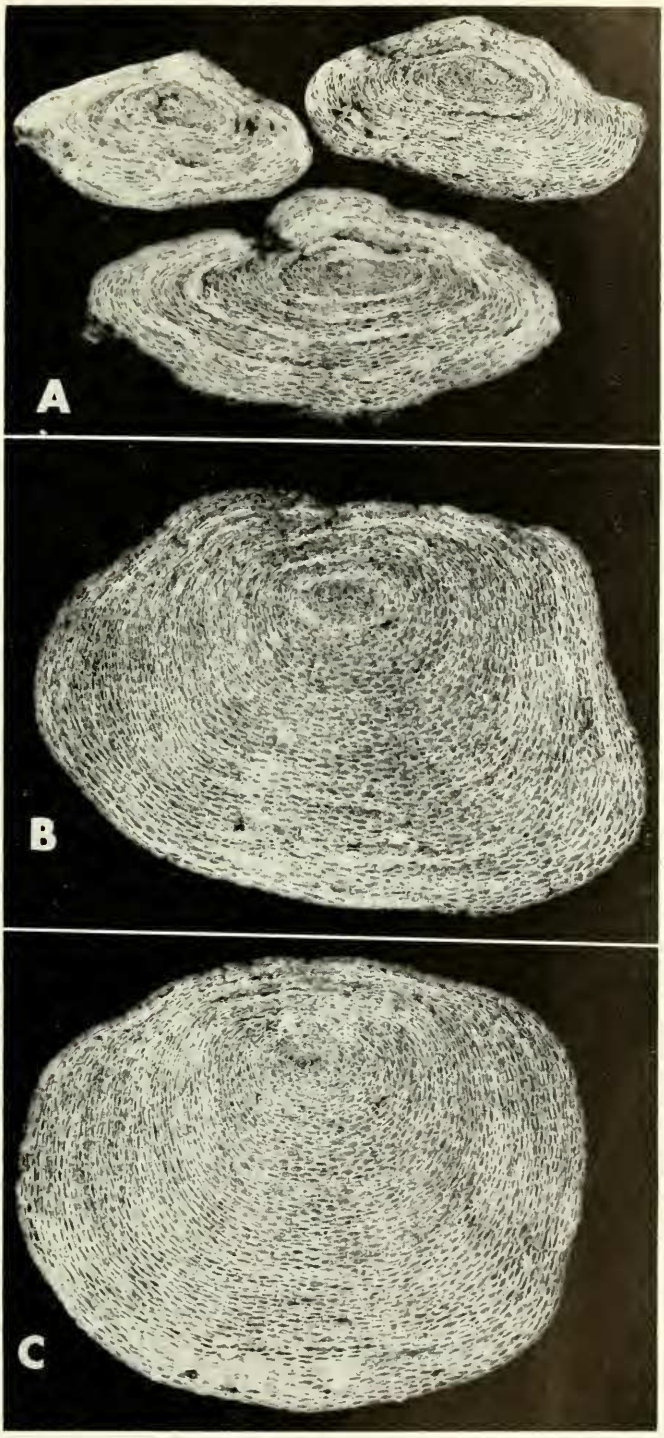

Fig. 26. *Caecilia mertensi* sp. nov. Type. CAS No. 63983. Scales: **A,** from about 50th fold; **B-C,** from last cm of body. All scales are to the same magnification.

head, 9.3 mm. The terminus is 9 mm wide and 10 mm high. The primary folds are 163, incomplete both above and below except on the posterior part of the body. Secondary folds are 45, of which five are complete. Scales begin at about the 38th

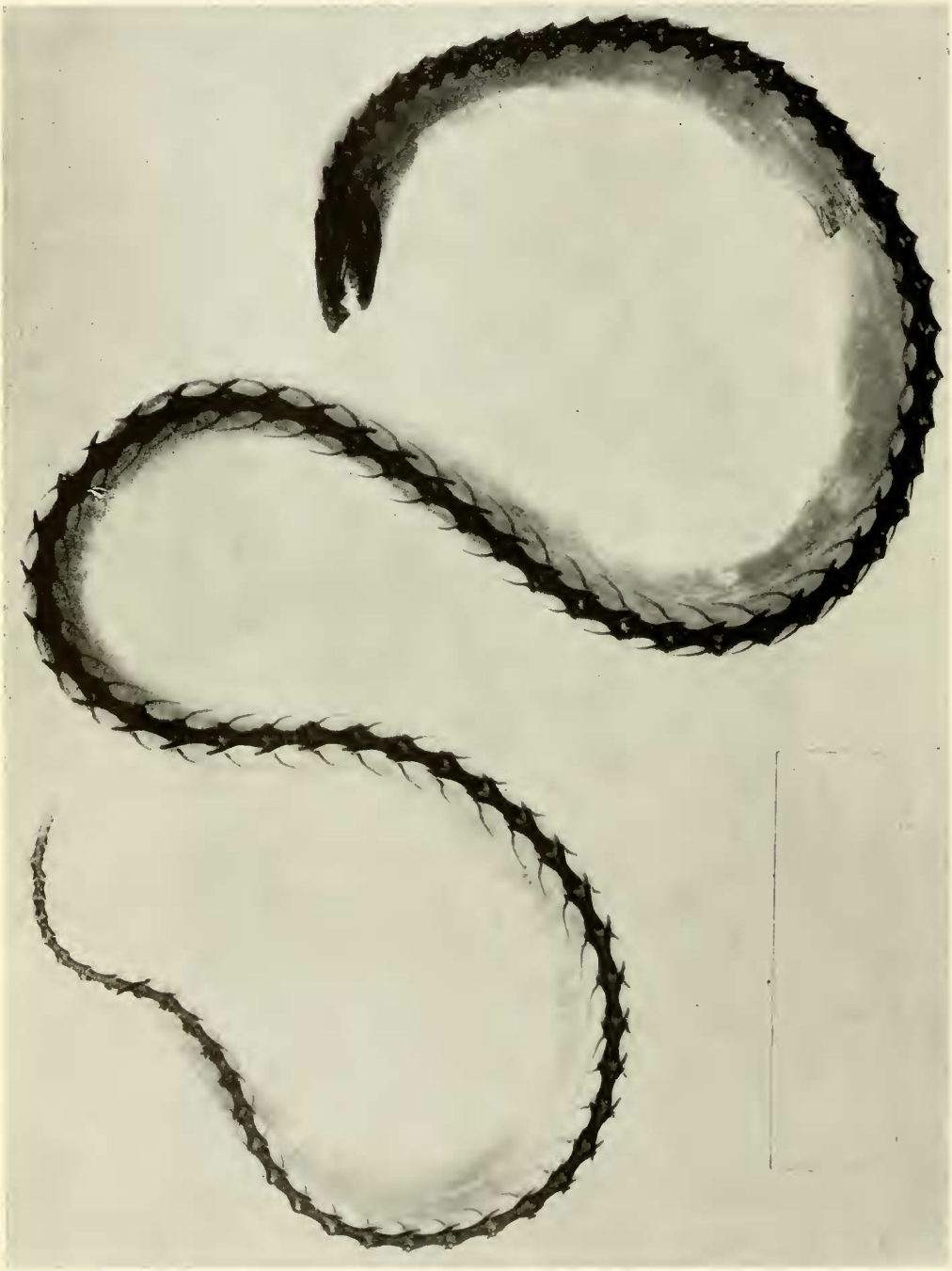

FIG. 27. *Caecilia nigricans* Boulenger. LACMNH No. 72742. Chocó, Colombia. X-ray. Length, 476 mm.

primary fold, and in the latter part of the body there are three scale rows in each fold, one larger than the other two. Scales of the largest row measure about 3 x 3 mm. Subdermal scales are present.

The range of variation of the number of primary folds of this species tends to exceed the usual limitations. Based on my counts and those in the literature the range is 156 to 192. However, the low number is of the synonymized *C. intermedia,* and the high number, from AMNH No. 90377, should be verified.

A caecilian living on Gorgona Island, an island about 40 km off-shore from southern Colombia, is referred to this species since it obviously derived from *nigricans* but not greatly changed. Its primaries are 164, its secondaries 36, three of which are complete.

Caecilia perdita Taylor
(Figs. 28-30)

Caecilia perdita Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 309-404, figs. 208-211. Type-locality, Andagoya, Condoto, Chocó, Colombia.

This species is known only from the Pacific slope of western Colombia. A recently collected specimen, CAS No. 119586, is from "Caño Discordo, between Cucurrupi and Noanama, on Río San Juan," collected by B. Malkin. The specimen agrees in essential detail with other known specimens. The primary folds are 139, the secondaries 80. The known range for the primaries is 133-152; for the secondaries 64-83. The terminal folds have a single row of relatively large scales.

Figures 28 and 29 show the considerable widening of the terminal part of the body and the slenderness of the head. The characteristics of the skin glands of the terminal parts are clearly shown in Figure 29. The character of scales from the terminal centimeter is shown in Figure 30. It would appear that the specimens occurring in the Pacific drainage area referred by Dr. Dunn (1942) to the species *C. dunni* may belong to this species.

Caecilia tentaculata Linnaeus
(Fig. 31)

Although this Linnaean name has been applied to the species to which these data

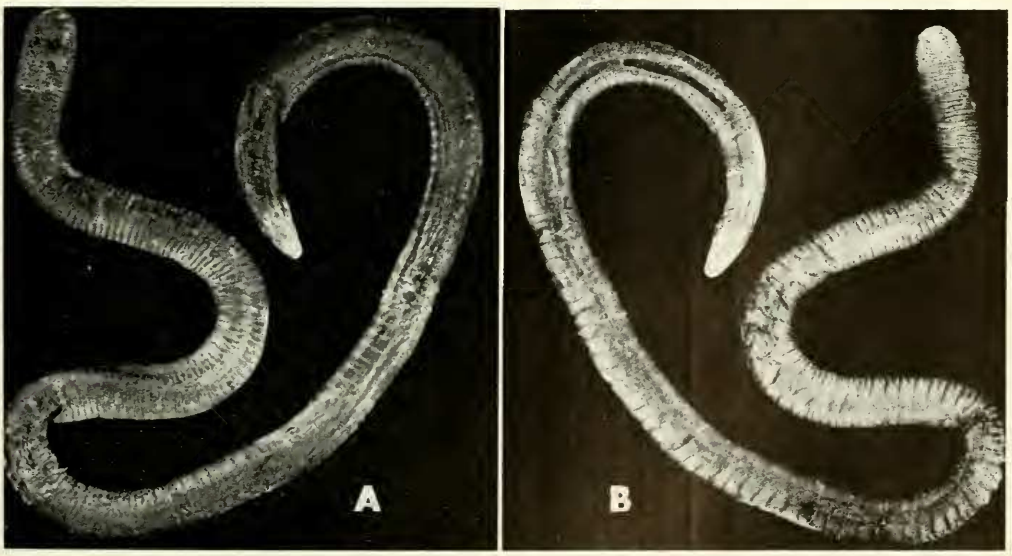

Fig. 28. *Caecilia perdita* Taylor. CAS No. 119586. Caño Discordo, Río San Juan, Colombia. **A,** Dorsal surface; **B,** ventral surface.

TABLE 6. Data on *Caecilia tentaculata* from Santa Caecilia, Napo, Ecuador (measurements in mm).

Number (KUMNH)	35683	98518	125318	125319	125320 ♂	125321 ♂	125322	125323	104434	104435	104436 ♂	104437 ♂	104438	104439 ♂	119392	119394 ♂
Total length	582	490	324	399	638	712	583	606	770	805	780+	710	800	850±	612	602±
Head width	19	13.4	9.7	11	16	19	17	22	20	21	19	19	21	23	16	16
Body width	22.2	15.2	9.8	12.8	24.2	28	21.8	28	33	32	29	24	31.5	32	17.5	20
Body width in length	26	32	32	31	26	25	26.7	21.6	23.3	22	27	29.5	24.6	26.5	35	30
Snout projects	4.2	3.7	2.7	2.4	4.6	4.9	4.5	4.2	4.5	6	5	6.2	6	6	4+	4+
Tentacle to eye	8.4	7	4.2	5	8.6	9.4	9.1	9.9	10	9	10	9	10	9	8	7.8
Tentacle to nostril	1.9	2.7	2	2.5	3.9	4.1	4.2	4	4.2	4	4.2	3.7	4.5	4.2	2.3	2
Snout tip to 1st groove	23	15.8	11	14.6	20	—	20	23	22	23	23	22.5	25	25	22.5	?
Snout tip to 2nd groove	26.8	20.2	13.7	17.3	24.7	28	25.6	28	30	29.2	30	27	33	34	27	?
Snout tip to 3rd groove	33.8	28	17.6	22	32.8	35	32	36	37±	40	38	37	41	42	36	?
Primary folds	121	119	121	119	118	119	118	116	115	119	122	119	119	119	121	122
Secondary folds	33	23	43	45	31	50±	36	44	40	34	37	34	34	32	38	45
Complete secondaries	4 or 5	0	5	4	3	3	?	3	6	3 or 4	4 or 5	3	4	4	4 or 5	5
Premax-max teeth	8-1-8	11-1-11	11-1-11	9-1-9	10-1-10	?	11-1-11	9-1-9	10-1-10	10-1-10	12-1-14	10-1-11	12-1-12	12-1-12	13-1-13	?
Prevom-pal teeth	9-1-9	11-1-11	10-1-10	10-1-9	12-1-12	?	10-1-11	12-1-12	11-1-10	13-1-14	13-1-13	13-1-12	14-1-15	15-1-15	11-1-11	?
Dentary teeth	8-8	10-10	10-10	11-11	9-9	?	12-12	10-10	10-10	13-13	12-12	12-12	13-13	13-13	10-10	?
Splenial teeth	1-2	3-?	2-2	2-2	3-3	?	3-3	2-2	2-2	3-3	3-3	3-2?	3-3	1-2?	1-2	?
Eye small in socket	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

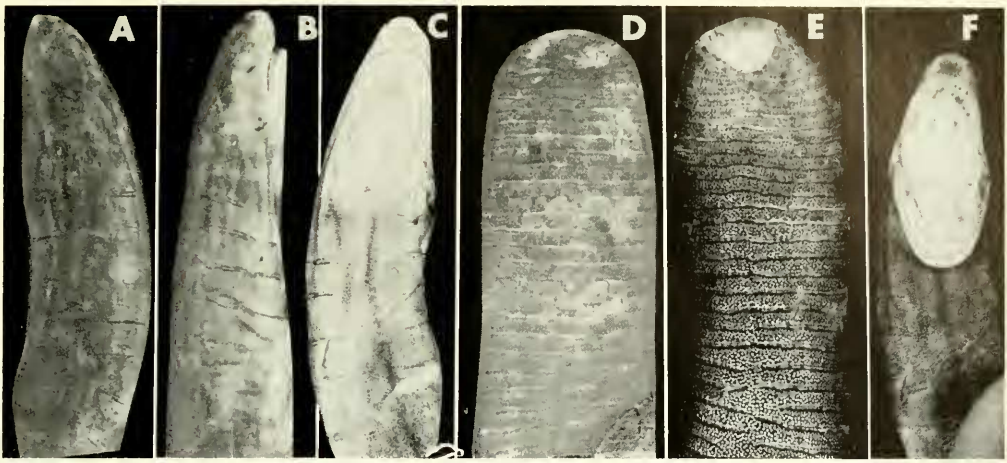

Fig. 29. *Caecilia perdita* Taylor. CAS No. 119586. Caño Discordo, Río San Juan, Colombia. **A-C,** Dorsal, lateral and ventral views of the head; **D-E,** dorsal and ventral views of the terminal part of the body; **F,** buccal region.

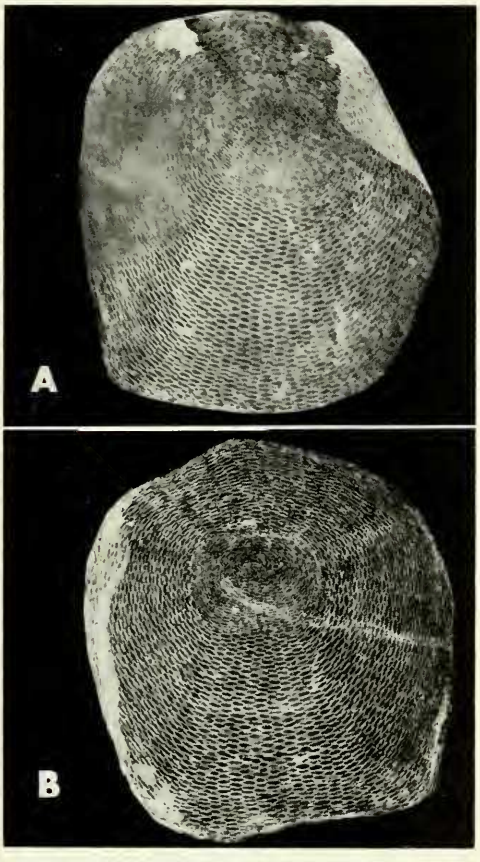

Fig. 30. *Caecilia perdita* Taylor. CAS No. 119586. Caño Discordo, Río San Juan, Colombia. Two scales (same magnification) from last cm of body. Size of B scale, 1.1 x 1.6 mm.

apply, there is considerable doubt that such an association is correct. Elsewhere I am presenting evidence that it is incorrect, but there is still much uncertainty as to what name is the proper one. The type specimen is lost so far as known.

Table 6 presented here is of specimens from KUMNH, all from Santa Caecilia, Napo, Ecuador.

Caecilia tenuissima sp. nov.

(Figs. 32-33)

Holotype: USNM No. 12353, from Guayaquil, Ecuador.

Diagnosis: A slender elongate species reaching a known length of 390 mm with a head width of 5.7 mm. Primary folds, 186, incomplete for the most part, with 9 secondary folds. Scales present at least in the last 10 to 15 cm of body; no subdermals found; eye in socket; narial plugs pointed; tongue darkened.

Description of the Holotype: Specimen defective with top part of the head opened and the brain removed, and parts of the palatal area and the jaws injured. Practically all of the significant features of the animal can be determined. The meas-

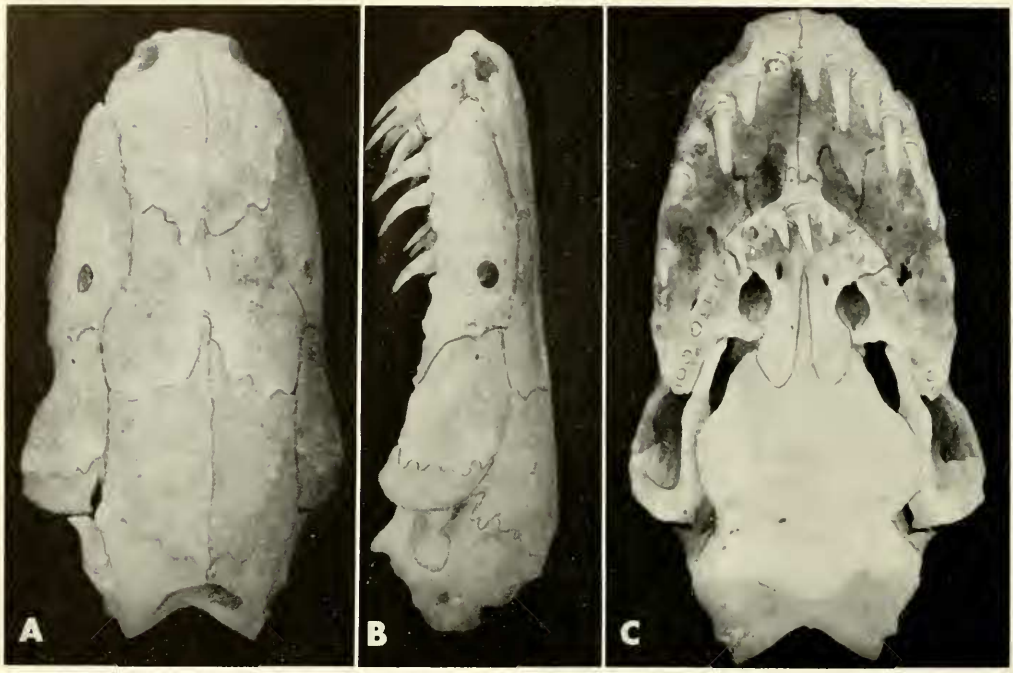

FIG. 31. *Caecilia tentaculata* Linnaeus. Skull, much enlarged.

urements of the head are, to a degree, estimated.

Head narrowing slightly anteriorly, the approximate width 5.7 mm; nuchal collars not clearly defined above, distinct ventrally, seemingly without transverse grooves dorsally; the distance from tip of snout to the third nuchal groove, 12.1 mm. The total length (stretched to eliminate kinks), 390 mm. The average height of the body approximately 4.8 mm. Eye, in a socket, seemingly invisible externally. The tentacular aperture below but definitely posterior to the nostril, its distance from the eye 2.8 mm, from the nostril 1 mm. The palate is injured but one small choana is visible. The tongue is somewhat pigmented, the narial plugs elevated and pointed. There are 186 primary folds (difficult to count), incomplete above and below throughout much of the body. There are 9 secondaries, 4 complete. A small unsegmented terminal shield, below which is the circular vent with 6 denticles posterior and 5 anterior to it. Anal glands not evident (probably a female). Scales are present in the last 10-15 cm of the body. Only a single scale row in the last folds, with a few other scattered smaller scales. The largest scales at a point 10 cm from terminus, 0.5 x 0.2 mm; in last cm the largest scales 1.3 x 1.1 mm.

Dentition: Premaxillary-maxillary teeth, 11-?; prevomeropalatine, 11-7; dentary, 9-?; splenial, 2-2. There seems to be no evidence of group-loss and group-replacement of the teeth.

Measurements in mm: Total length, 390; body height, 4.8, 4.5 posteriorly; height in length about 81 times. The body is slightly compressed, the width is about 3.5.

Color: Rather dark brown, vaguely lighter on lower part of head. Anterior part of body a little lighter than posterior. Top and sides of head whitish or yellowish in life, with blackish pigment about the tentacular area; some dark pigment on

the front of both jaws. A cream or whitish flecking extends irregularly over the whole body.

Remarks: This specimen was originally referred by Dunn (1942) to *Caecilia pachynema,* seemingly an incorrect association since it lacks all trace of the yellow broken stripe on the body. Its other characteristics also remove it from that form.

Oscaecilia bassleri (Dunn)

Data have been taken on the following specimens and here recorded: CAS No. 11654, Río Ampayacú, Pevas, Perú; KUMNH Nos. 125329, 125331, 127316, 127317, Lago Agrio, Napo, Ecuador, elev. 330 m.

Oscaecilia equatorialis sp. nov.
(Figs. 34-36)

Holotype: USNM No. 166421, from Dyott Farm, Km 121 from Quito, 6 km E Santo Domingo de los Colorados, Pichincha, Ecuador, collected by Dr. James Peters.

Diagnosis: A medium-sized species with slender elongate body, the length 432 mm, the body width 5 mm. Width in length 86 times. No eye-socket; the eye covered by bone. Primary folds 180, mostly incomplete dorsally; secondary folds 10, only 1 complete. Scales begin about 13 cm before terminus. A single row of scales in the terminal folds. Head grayish white;

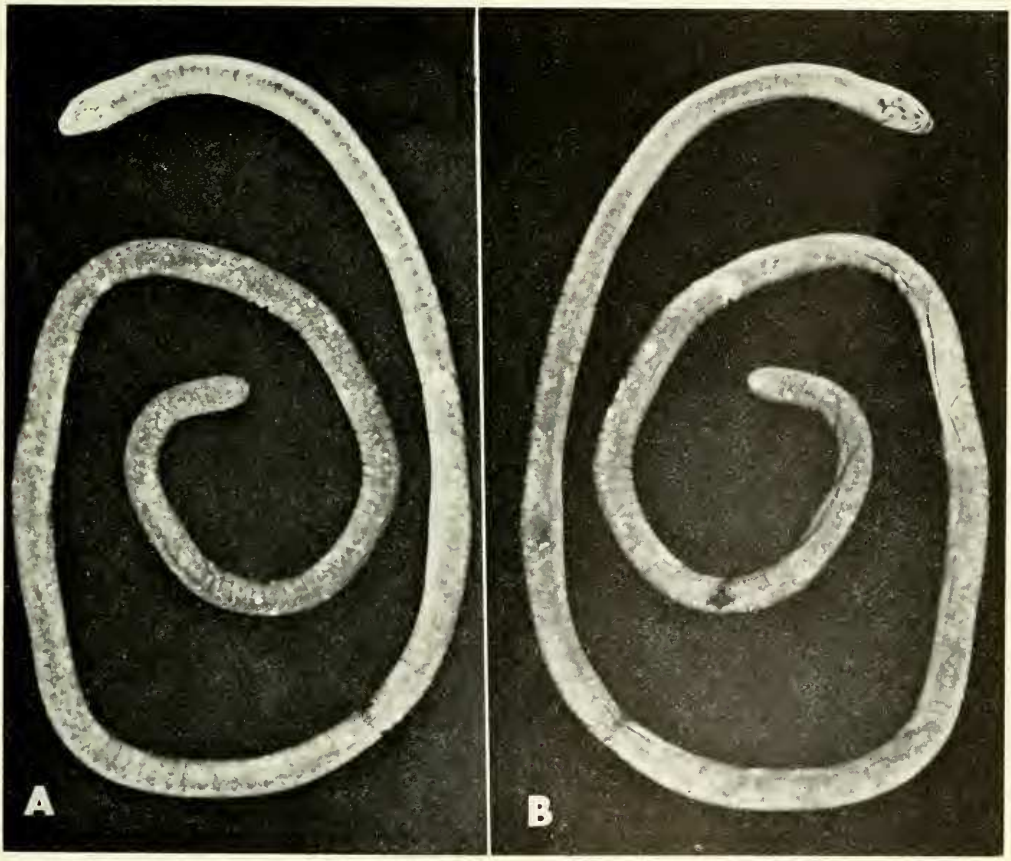

Fig. 32. *Caecilia tenuissima* sp. nov. Type. USNM No. 12353. Guayaquil, Ecuador. **A,** Dorsal view; **B,** ventral view. Length, 390 mm.

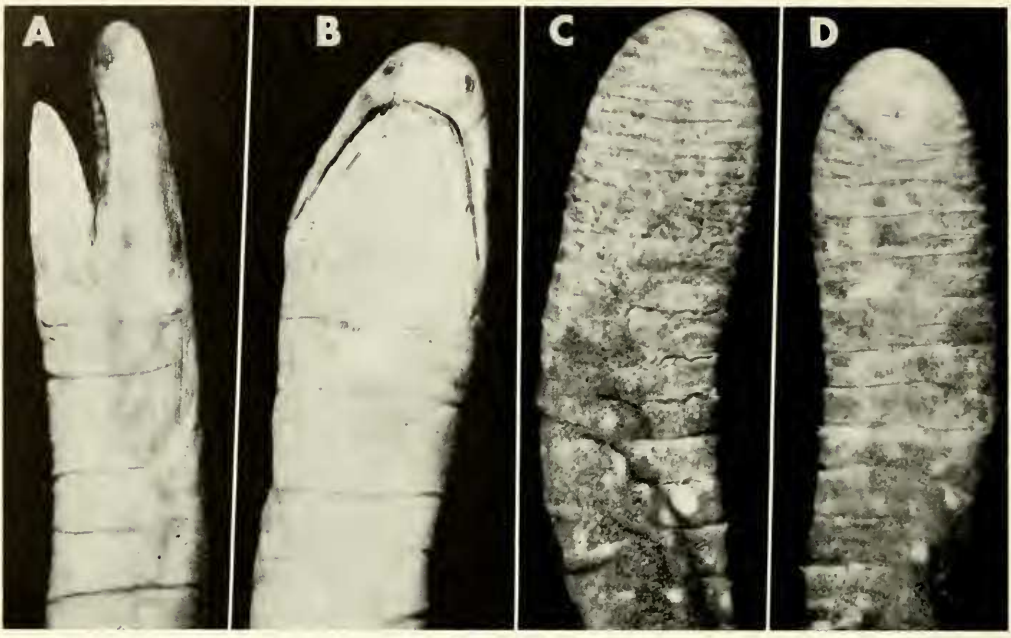

FIG. 33. *Caecilia tenuissima* sp. nov. Type. USNM No. 12353. Guayaquil, Ecuador. **A-B,** Lateral and ventral views of head; **C-D,** dorsal and ventral views of terminal part of body.

terminus, including the anal area, cream white.

DESCRIPTION OF THE HOLOTYPE: A very slender caecilian reaching a known length of 432 mm and with an average body width of 5 mm; the nuchal region for a distance of about 2.5 cm with a width of 6.6 mm. Eyes invisible externally, and if actually present covered with bone. The snout projects 1.5 mm beyond the mouth. First collar distinct, rather narrow, lacking a transverse groove; second collar separated from first by a groove laterally, but fused both above and below with the first primary fold and lacking a transverse groove. Nostrils plainly visible from directly above the head; the tentacular aperture almost directly below the nostril, its distance from the eye, 2.5 mm, from the nostril, 1 mm. Terminus of the body

TABLE 7. Data on *Oscaecilia bassleri* (measurements in mm).

Numbers	11654	125329	125331 ♂	127316	127317
Length	586	570	785	865	849
Head width	5	6.7	8.9	7.7	8
Body width	6.2	7	8	6.8	7
Body width in length	94	81	98	127	121
Tentacle to eye	3.1	3	3.5	4	4.1
Tentacle to nostril	0.9	1.1	1.1	1.1	1.2
Snout projects	1.4	1.7	2.2	2.3	2
Primary folds	249	236	250	254	260
mostly incomplete	yes	yes	yes	yes	yes
Secondaries	16	31	30	40	34
Sec. complete	4	7	5	6	2
Scales begin about last	1/5	1/4-1/5	1/5	1/5	1/5
Rows in posterior folds	1	1	1	1	1
Eye under bone	yes	yes	yes	yes	yes

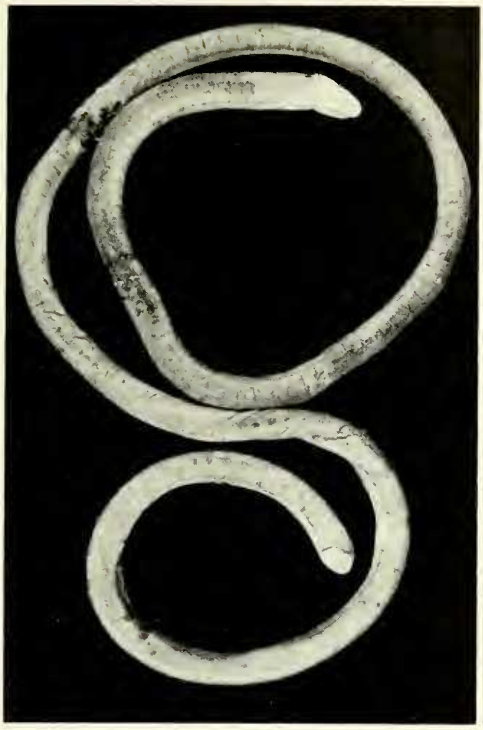

Fig. 34. *Oscaecilia equatorialis* sp. nov. Type. USNM No. 166421. Pichincha Province, Ecuador. Length, 432 mm.

slightly swollen with a small unsegmented terminal "shield."

Primary folds 180 following the collars, the folds incomplete throughout most of the body save the last few cm. Secondary folds 10, with only one complete. Scales present at the beginning of the last third of the body. At first only 1 or 2 scales in a fold on each side, but just before the secondaries begin there may be a nearly complete scale row. Scales in the secondaries are about the same size as those in the primaries, and the final secondary row may also be complete. The largest scales seen measured 1 x 1.3 mm. Choanae moderate in size, the diameter of one equals the distance between them. The sex is seemingly female as no anal glands are evident. No subdermal scales have been found.

Dentition: If group-loss and group-replacement of teeth occurs it is not obvious at this time. The tooth formulae: premaxillary-maxillary, 9-1-10; prevomero-palatine, 8-1-9; dentary, 8-8; splenial, 3-3.

Color: The head is grayish above and below, and probably whitish or yellowish in life; neck lighter than the rest of the body, which is a blackish slate except for the terminus and subterminal area which are whitish.

Measurements in mm: Total length, 432; width of head, 5.8; width of body, 5; snout tip to first nuchal groove, 7.7; to second groove, 9.5; to third, 11.9.

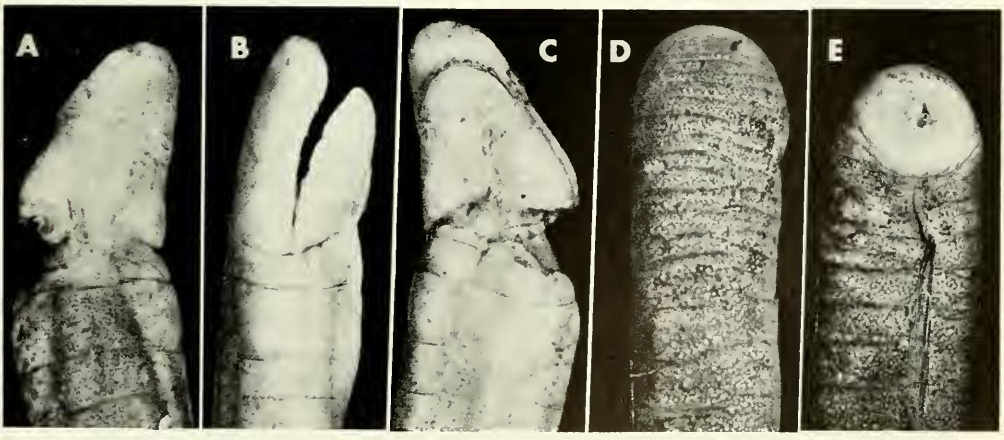

Fig. 35. *Oscaecilia equatorialis* sp. nov. Type. USNM No. 166421. Pichincha Province, Ecuador. **A,** Dorsal head region; **B,** lateral region of head and neck; **C,** ventral view of head and neck; **D,** posterior body, dorsal view; **E,** subterminal area, ventral view.

REMARKS: The specimen has been injured, the head being partially severed; otherwise it is in reasonably good condition. Figure 34 appears somewhat lighter than the specimen. The shape and character of the terminus are indicated in Figure 35.

Oscaecilia ochrocephala ochrocephala (Cope)

Two specimens, LACMNH Nos. 2719 and 2720, are from El Llano, one mile from Río Bayano, Panamá. These measure respectively 410 and 353 mm in length, and the folds respectively are primary, 180, secondary, 19, and 181, 16. In each there are 3 complete secondaries. The width in length is 60.3 and 50.4 times respectively. Thus both are within the known ranges of variation.

The following key will assist in contrasting the known species of the genus:

KEY TO SPECIES OF OSCAECILIA

1. "No scales" in folds (subdermals present), "no secondaries." Primaries, 226-231; "eye invisible"; length, 500-620 mm; width in length, 83-89 times. (Types destroyed) ..... *elongata* Dunn
—Scales present in folds; secondaries present 2
2. Primaries, 225-290 3
—Primaries, 140-210 4
3. Primaries, 249-286; secondaries, 17-54; vertebrae, 273±; total length to 975 mm; width in length, 80-107 times; a very small unsegmented terminal shield. Perú, Ecuador, Colombia ..... *bassleri* (Dunn)
—Primaries, 226; secondaries, 4; vertebrae (estimated), 231; length to 640 mm; width in length, about 91 times; a rather large unsegmented terminal "shield." Santa Caterina, Brasil ..... *hypereumeces* Taylor
4. Body with dark transverse rings 5
—Body lacking dark rings 6
5. Primaries, 169-189; secondaries, 7-29; length to 617 mm; width in length, 40-60 times; body ringed with black at edges of folds; head yellowish; scales begin about the 25th fold. Panamá and Northern Colombia .. *ochrocephala ochrocephala* Cope
—Primaries, 202-207; secondaries, 10-17; length to 686 mm; width in length, about 57 times; scales begin about the 24th fold;

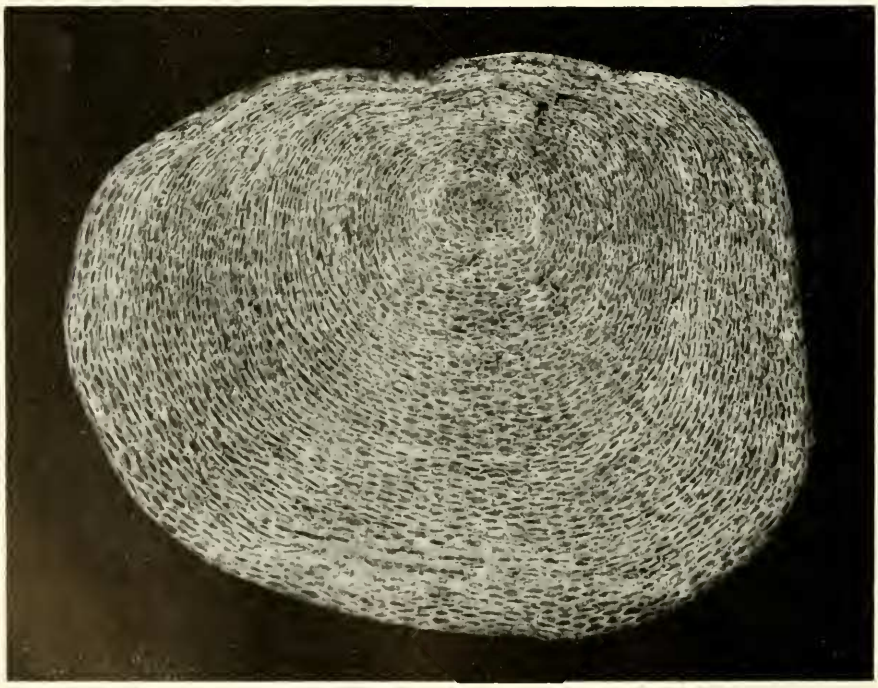

FIG. 36. *Oscaecilia equatorialis* sp. nov. Type. USNM No. 166421. Scale from last cm of body, 1 x 1.3 mm.

head slender; terminus wider than head. W. Colombia .... *ochrocephala polyzona* (Fisher)

6. Primaries, 146-147; secondaries, 16-17; length to 234 mm; width in length, 40-47 times; vertebrae, 151-153; grayish lavender above, ventrolateral region and venter whitish. Guyana .... *zweifeli* Taylor

—Primaries, 180; secondaries, 10; length to 430 mm; width in length, 86 times; body generally blackish or slate, head grayish white, terminus and subterminal area white. Pacific drainage, Ecuador .... *equatorialis* sp. nov.

Microcaecilia albiceps (Boulenger)

Dermophis albiceps Boulenger, Cat. Batr. Grad. s. Caud. and Batr. Apoda etc., 2nd ed., 1882, p. 98, figs. 1, 1a. Type-locality, Ecuador.

Besides data recorded on 11 specimens by me in my 1968 book, a further series of 15 specimens, all from Ecuador, has become available: 8 from Kansas University, 6 from the Los Angeles Co. Museum, and one from the California Academy.

The specimens from the Los Angeles Museum vary in length from 142 to 227 mm; in body width from 4 to 5.4 mm; the width in length from 34.6 to 45 times. The range of the primary folds is from 113 to 119.

More detailed data from the Kansas University and California Academy specimens are presented in Table 8. The longest specimen reaches a length of 240 mm. The primary folds vary between 112 and 123; the secondaries from 39 to 61, of which the complete secondaries number from 13 to 24.

Of the total of 26 specimens now studied all have been from Eastern Ecuador in the Atlantic drainage. I have no record of the species elsewhere in South America but it may be expected in countries bordering Ecuador.

Luetkenotyphlus brasiliensis (Lütken)

Siphonops brasiliensis Lütken, Vid. Medd. Nat. Foren Kjøbenhavn, 1851 (1852), p. 52. Type-locality, "Brasil".

Luetkenotyphlus brasilensis (Lütken), Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 588-592, figs. 320-322.

The type locality of this form was reported by me as "Brasil."

Table 8. Data on *Microcaecilia albiceps* (measurements in mm).

Number	10363	110612	106935	125324	125325	125326	125327	125328
Museum	CAS	KUMNH	KUMNH	KUMNH	KUMNH	KUMNH	KUMNH	KUMNH
Locality	Río Cotopino, Ecu.	Santa Caecilia, Ecu.	Limón Cocha, Ecu.	Lago Agrio, Ecu.	Lago Agrio, Ecu.	Lago Agrio, Ecu.	Lago Agrio, Ecu.	Lago Agrio, Ecu.
Total length	170	192	211	110	174	240	186	179
Width of head	4	4	4.1	3	4	4.7	4.1	4
Width of body	4.5	4.4	4	3	4	4.8	4.9	4.9
Width in length	38	43.5	44	36	43.5	50	38	36.5
Eye to tentacle	?	not vis.	0.6	0.3	0.5	not vis.	0.4	0.5
Tentacle to nostril	2.0	1.9	1.9	1.9	2.5	2.7	2.0	2.0
Snout length	1.0	1.0	1.0	.9	1.0	1.7	1.0	1.0
Snout tip to 1st groove	5.7	5.0	6.1	4.1	5.0	6.0	6	5.3
Snout tip to 2nd groove	7	6.8	7.5	5.4	6.8	8	7.5	6.8
Snout tip to 3rd groove	9.3	9	10.2	6.6	8.7	10.2	9.2	8.6
Primary folds	123	117	116	123	116	120	117	112
Secondary folds	61	47	44	55	39	52	53	43
Complete secondaries	19	15	13	?	14	24	18	18
Premax-max teeth	9-10	8-8	8-7	6-7	7-8	7-6	7-6	7-6
Prevom-pal teeth	13-12	15-14	15-15	11-12	12-13	13-14	13-12	13-14
Dentary teeth	10-10	10-11	11-11	10-10	11-11	11-11	11-11	12-12
Splenial teeth	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0
Scales begin about primary	15	?	?	20	18	12	15	21
Scales in middle body rows	3-4	3-4	3-4	3-4	3-4	3-4	3	3
Scales in terminal body rows	4	4-5	4	3-4	3-4	3-4	3	3

A letter from Dr. F. W. Braestrup of the Universitetets Zoologiske Museum, Kjøbenhavn, Danmark dated Dec. 11, 1971, makes the following statement: "In an old register there is an entry by Reinhardt dated Jan. 14, 1872 according to which the type of *Siphonops brasiliensis* Ltk. (merely said to be from Brasil) was collected at São Paulo 'sent by Dr. Langgaard'."

Herpele squalostoma (Stutchbury)

Two LACMNH specimens, Nos. 49715-16, from Vemba-Minzione Mayumbe, Lower Congo, have been available. Data, respectively, are as follows (measurements in mm): Length, 351, 216; head width, 7, 5.9; body width, 9.5, 7; eye under bone; snout tip to first nuchal groove, 8.7, 7; to second groove, 11, 8.1; to third, 15.1, 11; snout projects 2, 1.4. Nostril not visible from directly above head in either; tentacle in both, near lip; primary folds, 126, 125, in both all complete. Secondary folds, 43, 36; 5 complete in each. Scales in each begin about the 30th primary; 2-3 rows at middle, 4 rows posteriorly; largest scales measure about 2.0 x 1.8. Tooth formulae: premaxillary-maxillary, 14-13, prevomeropalatine, 14-15, dentary, 11-11 in both specimens; splenial, 2-2 in No. 49715. No terminal "shield"; width in length about 37, 31 times. The collars are complete, each with a transverse groove.

A third, living, specimen from the "Congo" was sent to me by Mr. C. D. Wellman. It was light grayish white but with rather a pinkish tinge on the anterior part of the body. It was maintained on earthworms, and later returned to the owner.

Schistometopum thomense (Barboza du Bocage)

LACMNH No. 35845, São Thomé, Gulf of Guinea, Africa. This specimen is 214 mm in length, the width (9 mm) in length approximately 24 times. Eyes visible in socket; the nostrils terminal, not visible from directly above head; tongue without narial plugs. Primary folds, 95; practically all complete. Secondary folds, 29; 7 complete. Tooth formulae: premaxillary-maxillary, 15-16; prevomeropalatine, 16-16; dentary, 12-12; splenial, 7-7. Scales begin at about the 21st primary; 4 scale rows in the terminal folds. The color is uniform yellow.

Siphonops annulatus (Mikan)

A very large number of specimens is available of this widely distributed South American species. I have recently examined a small series from Napo, Ecuador (LACMNH Nos. 73286-73290). The data are within the limits of variation published by Taylor (1968) based on more than 100 specimens.

On page 559 in Taylor, 1968, there appears an unaccountable error; it states that the variation in transverse primary folds is 112 to 130. On page 554 the variation is correctly stated as 78 to 98 folds.

It has been noted that the numbers 90-98 appear chiefly in Perú, Ecuador and Bolivia; those from the eastern range of the species usually vary between 80 and 90.

The greatest known length is 450 mm.

Siphonops hardyi Boulenger

Siphonops hardyi Boulenger, Ann. Mag. Nat. Hist., ser. 6, vol. 8, 1891, p. 457. Type-locality, Porto Real, Rio de Janeiro, Brasil.

A young specimen of this rare species is CAS No. 11653 from Rio Pedro Branca, Sierra Mantequeiras, Rio de Janeiro, Brasil, between Parati and Cunha (18 km from Parati). The number of primary folds is 93, within the known range of variation of 92-101. The total length is 129 mm. The eye is distinct in the socket.

Siphonops paulensis Boettger

The type-locality of *paulensis* is São

Paulo, Brasil. It has a wide distribution in South America. I have recently examined CAS No. 49897 from Rio Grande do Norte, Brasil.

Dermophis gracilior (Günther)*

Gymnopis gracilior Günther, Biol. Cent. Amer., 1892, p. 306, pl. 76, fig. 13. Type-locality, Chiriquí, Panamá.

The British Museum type and two specimens in the California Academy of Sciences were listed by Dunn (1942) under the name *Gymnopis mexicana gracilior*. He listed also a fourth specimen, BMNH No. 1907.6.28.27, from Pozo Azul, Costa Rica. This latter however is a different species. I have recently examined all of these specimens. It becomes apparent that none of these is related subspecifically with *Dermophis mexicanus* (Duméril and Bibron). Among the four specimens, Dunn gives as the variational range of the primaries, 95 to 102; of the secondaries, 32 to 78. My counts for the type and CAS specimens are 94 to 99 for primaries and 68 to 78 for secondaries.

Günther seemingly has erred in stating that the secondaries begin at the 40th fold since his figure shows them beginning at the 14th fold!

Taylor (1952) referred a Costa Rican specimen to the name *Dermophis mexicanus gracilior* but this specimen was later made the type of another species.

The CAS specimen No. 79463 from Boquete, Panamá, is a pregnant female of *gracilior* 323 mm in length. The uterine young are relatively light-colored, almost white on the venter. The transverse darker lines are not evident. Their heads are somewhat darker than the dorsum. At this stage the tentacular aperture is evident and in some the tentacles are protruding. The lower jaw has numerous rows of larval teeth. The primary folds are as yet poorly developed and cannot be counted. The six embryos measure 106, 107, 107, 107, 110, and 111 mm in length.

Dermophis mexicanus eburatus Taylor*

Due to the courtesy of Dr. Alan Leviton I have been able to examine a good series of these caecilians collected by Mr. Slevin at or near Volcań Isalco, Salvador. This series is numbered CAS 69627-69658 (two or three of the series wanting). Table 9 gives pertinent comparative data on these specimens.

Unfortunately the exact type-locality of *D. mexicanus* is presumably unknown, and larger series from the northern range may invalidate *eburatus*.

The Table shows a range of primaries between 104 and 112, the mean being about 107; the secondaries show a wider range, 61-88, the mean being about 75. The number of teeth increases with length of body (age). Scales in the folds begin between the 8th and 14th primaries. Where they first appear anteriorly there may be only a single scale in each side of the fold, but there are 6-7 scale rows in the posterior folds. The largest scales may measure 3 mm in greatest dimension.

The position of the tentacular aperture is below eye level, more than twice as far from the nostril as from the eye, as is typical of the genus *Dermophis*. Body width in length varies between 15 and 24 times.

With an examination of this material I am of the opinion that *Dermophis eburatus* is probably not worthy of specific distinction.

Since the exact type-locality of *mexicanus* is not known ("Mexico"), it will be uncertain whether any Mexican population is subspecifically distinct from *eburatus*. It is probable that the scale rows of *m. ebu-*

* Since this paper went to press a paper on the partial revision of the genera *Dermophis* and *Gymnopis* has appeared by Savage and Wake (Copeia, 1972, no. 4, p. 680). This is Savage's second attempt at a revision of these genera, the first appearing in Trans. Kansas Acad. Sci., vol. 56, no. 3, 1953, pp. 321-324. One should look forward to his next several revisions.

TABLE 9. Data on *Dermophis mexicanus eburatus* (measurements in mm).

Number (CAS)	Body length	Body width	Head width	Body width in length about	Primary folds	Secondary folds	Complete secondary folds	Premaxmax teeth	Prevompalat. teeth	Dentary teeth	Splenial teeth
69627	135	7	6	19	105	77	12				
69628	165	8	7	20.6	110	83	—				
69629	174	10	7	17.4	104	75	—				
69630	170	8.4	7	20	106	68	—				
69631	267	13	10	20.5	112	74	—				
69632	165	7.5	6.2	22	108	88	—				
69634	145	8	7	21	109	74	12				
60636	140	7	6	20	106	79	8				
69637	173	7.2	6.2	24	108	70	—				
69638	123	6	6	20	107	69	7				
69639	179	9	6.8	19	106	72	—				
69640	246	10.1	9	24.3	106	76	—				
69641	311	18	17	17	107	67	6	17-16	16-17	15-16	0-0
69642	321	18	11.8	18	107	79	10	19-19	22-21	15-15	0-0
69643	244	13	8.4	19	109	71	—	——	——	——	—
696'4	192	9.9	7.7	19.5	108	71	—	——	——	——	—
69645	280	14	11.4	20	107	61	8	17-15	15-16	13-13	0-0
69646	210	9.8	8	21	108	84	—	——	——	——	—
69647	—	—	—	—	109	75	12	19-18	19-18	14-15	0-0
69618	285	13.3	13	21.5	104	69	—	——	——	——	—
69649	331	17	12	19.4	106	76	10	19-18	17-18	15-15	0-0
69650	231	10	8	23	108	73	—	——	——	——	—
69652	354	19.8	13.5	17.8	106	68	10	19-20	20-20	18-18	0-0
69654	395	19	14	21	106	64	8	21-20	21-22	16-16	0-0
69655	357	23	14	15.5	105	—	—	17-18	17-18	15-15	0-0
69658	406	21	14	19	107	88	8	19-18	22-21	15-15	0-0

ratus exceed those in *mexicanus* since certain specimens of *mexicanus* examined show only 3 or 4 scale rows posteriorly in each fold. The number is larger, 6-7, in *m. eburatus*.

Geotrypetes grandisonae Taylor

(Figs. 37-38)

Geotrypetes grandisonae Taylor, Univ. Kansas Sci. Bull., vol. 48, no. 23, 1970, pp. 849-855, figs. 1-4.

A recent paper of Largen, Morris and

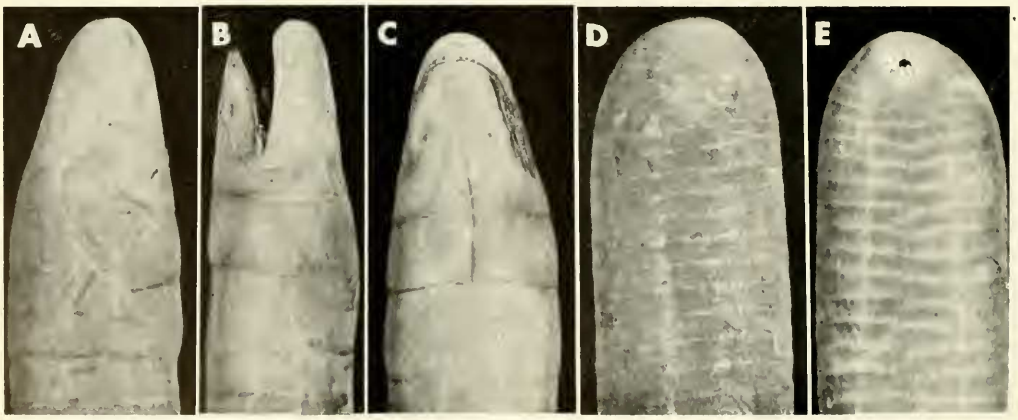

FIG. 37. *Geotrypetes grandisonae* Taylor. BMNH specimen from a point east of Buna village near Jimma Kaffa, Ethiopia. **A-C,** Dorsal, lateral and ventral views of head; **D-E,** dorsal and ventral views of the terminus of the body.

Yalden (1972) gives a splendid report on a series of 30 specimens, nearly all larvae. Dr. Largen has had the kindness to send the specimens for me to examine.

Among the larvae is one specimen (No. 23 from Abiu, near Gore, Ethiopia) approximately 57 mm in length. While it is difficult in most species to classify the larvae, I strongly suspect that this tiny specimen represents a species different from

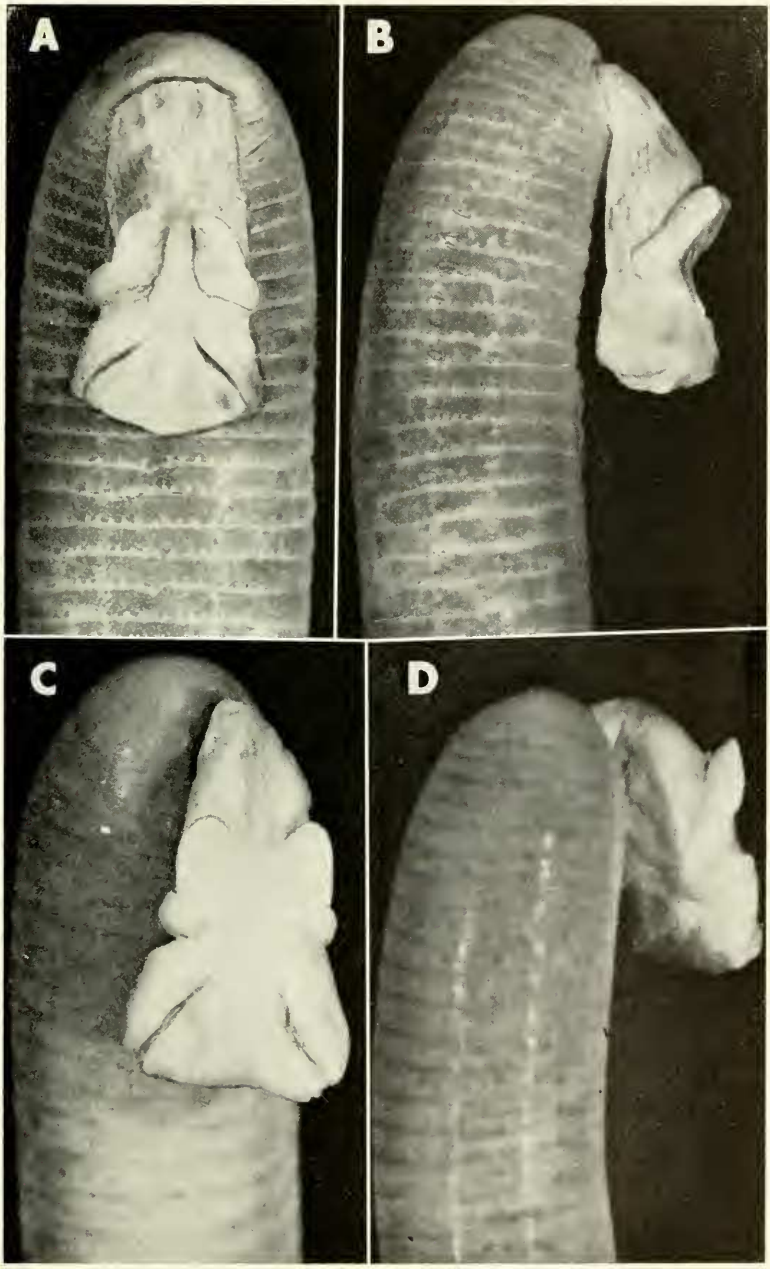

Fig. 38. *Geotrypetes grandisonae* Taylor. **A-B,** Ventral and lateral views of extruded penis; **C-D,** ventral and lateral views of second specimen with extruded penis.

the other larvae, and actually may be the young of one of the diminutive genera, *Afrocaecilia* or *Boulengerula,* that occur in the neighboring country of Kenya. This opinion is based on the very diminutive size of the specimen and the fact that there is greater loss of larval characteristics of the labial region of the mouth. This suggests that it is more mature than all the other larval specimens that are considerably larger.

I include figures of the anterior and posterior parts of the body (Fig. 37) and of the penial structures of two adult specimens (Fig. 38) despite the fact that a good figure of these structures is given in the paper mentioned.

Geotrypetes seraphini congoensis Taylor

Geotrypetes congoensis Taylor, Caecilians of the World, Univ. Kansas Press, 1968, pp. 715-718, figs. 392, 393. Type-locality, Kitadi, "riv. Sinda," Mayumbe Region, Congo. (Kiva as a locality is in error.)

Geotrypetes seraphini seraphini Laurent, Rev. Zool. Bot. Afr., vol. 63, 1961, pp. 262-266.

Taylor, in reporting the type-locality for this species, misinterpreted a handwritten invoice as to the locality. Kiva is actually on the eastern side of Congo; Mayumbe is western. Dr. Laurent calls attention to this error in a recent paper.

I have recently examined two specimens, CAS Nos. 49714 and 118591, from Minkala River, Mayumbe, Congo.

I now regard *congoensis* as a subspecies of *G. seraphini.*

Uraeotyphlus menoni Annandale

Uraeotyphlus menoni Annandale, Rec. Ind. Mus., vol. 9, pt. 5, no. 20, Dec. 1913, pp. 301-302. Type-locality, Trichur, Cochin, India.

Annandale states that the type of *menoni* has about 170 rings or folds plus 10 complete rings on the tail—thus a total of approximately 180. There was one co-type.

Seshachar (1939) also counted the primaries and secondaries on the same specimens and reported 197 for the type, ZSIC No. 16709, and 195 for the co-type, ZSIC No. 16695.

I have recently examined two specimens from Kottyam, India, Nos. 1216A, 1216B, private collection of Harlan D. Walley, Northern Illinois Univ., Dekalb, Ill., one of which has a total series of folds on body and tail of 179 and the other a total of 187. These are almost identical in color and markings.

Scolecomorphus vittatus Boulenger

Specimens LACMNH Nos. 35479-35482, and 35668 (young) have recently been studied and data taken. These vary in length from 140 mm to 324 mm.

All are from "Bunduki," Uluguru Mts., 5,000 ft. elev., Tanzania. The primary folds are 129-153, a few terminal ones complete; no secondaries; eye under bone (sometimes pulled forward to lie close to nostril); tongue without narial plugs; prevomeral and palatine dental series widely separated; tentacular termination large, bulbous; dentary teeth, 11-11; no splenial teeth; group-loss and group-replacement of teeth; no scales.

The range of primaries does not exceed that in many species of the order; the total known is 122-148 in this species (120-154 in the genus).

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